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ORIGINAL ARTICLES.

THE FUNCTION OF THE KIDNEYS.

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Origin of Urea and Uric Acid.—Some of the recent editorials on this subject would lead us to infer that the function of the kidneys is not well understood, or that there is a wide difference of opinion regarding it.

Merck's *Bulletin*, Dec. 18, 1892, says editorially: "Through the agency of the epithelial cells lining the uriniferous tubules the urea, uric acid and creatine are normally *formed* and *discharged*," etc. Again: "The function of the glomeruli is *comparatively simple*, being entirely under the control of the vasomotor system."

Indeed, such statements as the foregoing are comparatively common, but ought not to go unchallenged. A knowledge of physiology should precede and serve as a basis for rational therapeutics, and the more thorough and more nearly correct the former, the more scientific and satisfactory will be the latter.

Instead of calling the kidneys secreting organs and the urine an excretion, it seems more rational to say that we know that an average constant composition of the blood as regards normal constituents, such as sugar, etc., and of waste products such as urea, must be maintained, in order to preserve health and life.

To the kidneys is assigned the duty of maintaining this invariable composition; of eliminating from the blood all those substances which do not belong to it normally, whether it be an abnormal constituent, or a normal one that has increased beyond the normal amount.

The parts concerned are the glomeruli with Bowman's capsule, and the epithelium of the convoluted tubules.

There are two principal theories in regard to the secretion and excretion of urine.

Ludwig's mechanical theory, promulgated in 1844, that the urine is simply filtered in a dilute form by the glomeruli; further additions are made by osmosis and diffusion through the tubular epithelium.

In favor of this theory we find such physical conditions existing as would make such a theory tenable; we find the conditions favorable for osmosis, etc., and we may explain the failure of the proteids to pass, by saying that they do not filter readily through animal membranes. Against such a theory is the evidence, first, of analogical reasoning from what we know of other glands; second, the positive evidence. The urine is unlike the blood in composition and reaction; after destruction of the tubular epithelium, the urea is not eliminated but accumulates in the blood. If benzoic acid be given it is converted in the kidneys into hippuric acid, being formed synthetically in the kidney;—besides other evidence to be introduced.

The other theory, known as Bowman's vital theory, was introduced in 1842 and is as follows: filtration in the glomeruli; excretion of the specific constituents by the cells; the tubules; reabsorption of some water. But even this does not explain all the facts as shown by the following evidence:

First, then, as regards the filtration in the glomeruli and the statement in the paper referred to in which it is stated that it is a "comparatively simple process." In transudations elsewhere we find that they contain serum albumen. But serum albumen although a normal constituent of the blood, is not a normal constituent of the urine and is not allowed to filter through the capsule of Bowman under normal conditions. Egg albumen is allowed to pass, however. How does the capsule discriminate if it is only a filter?

Again, we find that sugar is a normal constituent of the blood, but not of the urine, although readily soluble in water. When, however, the percentage of sugar rises above the normal it is immediately allowed to pass, justifying the definition of the function of the kidney: "To maintain the average, normal, constant composition of the blood stream."

Furthermore, we find that in disease of the capsule, both sugar and serum albumen are allowed to pass freely. Blood pressure higher than the normal allows the albumen to appear in the urine. There is a limit therefore, to the extent to which the capsule can prevent the transudation of the normal constituents of the blood.

In the amphibian kidney, we find a double blood supply and we can introduce sugar and egg albumen into the circulation and they are at once eliminated.

If we cut off the blood supply to the glomeruli we find no sugar or peptones in the urine, although the blood supply to the tubular epithelium remains normal. We must, therefore, conclude that if they are not eliminated by the tubular epithelium they must be by the glomeruli.

In regard to high pressure in the glomeruli, we find that if the renal veins be tired, thus giving us a maximum pressure, there is no secretion. Therefore the conditions favoring glomerular filtration are, *a*, high blood pressure in the glomeruli; *b*, velocity of flow. The blood pressure is controlled and varied by the vasomotor nervous system.

And, lastly, urea and sugar are both soluble in the blood. The urea is eliminated because it is a waste product and no longer useful. The sugar is retained because it is of value in the production and maintenance of those chemical processes, the sum of which constitutes life itself. We recognize the purpose of the Divine plan without being able to explain the reason.

It seems too evident that the glomerular secretion instead of being a "comparatively simple" affair, is a complicated complex process, and that anything like a mechanical explanation is narrow, faulty, inadequate. Filtration and diffusion play their part but they are not masters of the situation.

Let us now consider the function of the tubular epithelium. In favor of the so-called vital theory we have the following evidence:

1. Indigo and bile pigment are eliminated by the cells of the convoluted tubes and Henle's loop.[1]

2. Uric acid is eliminated by the tubular epithelium in birds. The purpose is manifest. If it were eliminated by the malpighian bodies concretions might form, but while eliminated by the tubular epithelium it is constantly washed down by the urine.

3. If, in the amphibian kidney, we shut off the circulation from the glomeruli and then inject urea, it leads to an increased excretion of urea plus some water.

4. Sulphindigotate of soda is also eliminated by the tubular epithelium.

"If the blood becomes too alkaline, as it may by the conversion of vegetable salts of alkalies into alkaline carbonates, the renal cells separate the excess of these carbonates from the blood.

"If the alkalescence of the blood be diminished, perhaps by the liberation of sulphuric acid and phosphoric acid, caused by the decomposition of the proteids, of nucleins and licithins, the renal cells take up the neutral salts of the blood, separate them into acid and alkaline, convey the acid salts into the urine and the alkaline back into the blood until the normal alkalescence is restored."[2]

Therefore, we can say that the tubular epithelium excretes urea and some water and has other functions in maintaining the normal condition of the blood. But the how, is not known to us. We are here confronted with the problem, the life of the cell, a term of whose meaning no one has any conception. But we do know that it possesses those incomprehensible qualities which bring about synthesis in the organism.

THEORY OF THE SECRETION OF THE URINE.

1. The secretion and excretion is partly mechanical and partly a vital process.

2. The water and most substances soluble in it, are eliminated by the glomeruli chiefly by filtration, the amount depending upon blood pressure in the glomeruli, provided, at the same time we have *a*, velocity of flow; *b*, normal condition of the blood; *c*, intact condition of kidney structures; *d*, average amount of urea, salts, etc., (including those which act as diuretics) present in the blood.

3. That this blood pressure is under the control of the vasomotor system.

The function of the glomeruli is not mechanical alone, but also vital, as it will allow egg albumen, an excess of sugar, etc., to pass through but will not allow any serum albumen to pass under normal conditions, and no sugar unless it be in excess.

4. Urea, uric acid, etc., are eliminated by the tubular epithelium, the *concentration* of the urine therefore depending upon: *a*, the amount of salts in the blood; *b*, intact condition of the tubular epithelium. Some water is also eliminated by the tubular epithelium.

5. A hearty meal increases the quantity of urine by *a*, increasing the fluids taken; *b*, by increasing the proteids which increase the urea, it in turn stimulating the tubular epithelium.

Thus we see that the work done by the kidneys depends on the condition of the blood, this furnishing the normal stimulus and thus explaining why secretory nerves are not found, simply because they would be superfluous. The greater the percentage of abnormal constituents, or the excess of normal ones, the more active the kidneys.

6. There is a compensatory relation existing between the skin and the kidneys and cold applied to the skin increases the quantity of urine by diminishing the amount of sweat, and also by increasing blood pressure it increases renal pressure and thus the amount of urine.

7. In fever the renal artery is less full and therefore there is less urine.

8. In case of weak heart, dropsy is caused by *a*, increased venous pressure brought about by diminished arterial pressure; *b*, slowing of the current of blood and thus increased venous pressure in the kidneys, thus diminishing elimination of water.

9. Diuretics act in one of the following ways: *a*, by increasing pressure and velocity in the glomeruli; *b*, by acting locally on the tubular epithelium.

10. In hysteria, etc., where there is polyuria it is possible that there may be dilatation of the vessels entering the glomeruli, but this is pure speculation.

11. Certain substances as hippuric acid, are formed synthetically in the kidneys.[8]

From the foregoing it must be evident that the composition of the urine must vary within rather wide limits even in health. There are in the urine:

1. Certain normal constituents in considerable amounts, whose origin, place of formation as well as composition, etc., are well known.

2. Others which appear only in small amounts.

3. Those which are found only under abnormal or pathological conditions.

4. Those which have been accidentally introduced as foods or medicine and are eliminated with the urine.

ORIGIN OF SOME OF THE URINARY CONSTITUENTS.

The proteids are, by the action of the digestive ferments, converted into peptones; the peptones further converted by having a part of the nitrogen split off in the form of amido caproic acid, or leucin, an aromatic amido acid, tyrosin, amido succinic acid, or asparetic acid, and also glycocoll. These are probably the precursors of urea as shown by the experiments of Schulizen and Necki, Salkowski and Emeriem.[4] Hoppe Seylor and Salkowski regard cyanic acid as the immediate precursor of urea.[5] Dreschel considers that urea arises from the carbamate of ammonia. Carbamate of ammonia stands midway between carbonate of ammonia and urea.

But the question of interest and importance, (aside from the precursors) is, *where is urea formed?* The most complete and reliable researches as to where urea is generated have been made by W. von

[1] Bunge, "Physiological Chemistry," p. 351.
[2] Bunge, "Physiological Chemistry," p. 351.
[3] Bunge, p. 317. Foster, vol. v, p. 136.
[4] Bunge, "Physiological and Pathologtcal Chemistry," p. 319.
[5] Op. cit.
[6] W. von Schroeder, "Archiv. of Exper. Path. in Pharm.," vol. xv., p. 364, 1882, and vol. xix, p. 373, 1875. Bunge, p. 304.

Schroeder.[6] He shows conclusively that urea is *not formed in the kidneys*, but merely excreted by them.

Although we would naturally turn to the muscles as the next most likely place of generation, he also shows that it is not formed here nor in the nervous system, and if it is present in the blood, the blood probably obtains it from the liver. The evidence in favor of its formation in the liver is both clinical and experimental and is abundant and conclusive. Experimental:[7]

1. The synthesis of carbonate of ammonia into urea occurs in the liver.

2. In disease of the liver as interstitial hepatitis, the elimination of urea is interfered with and the amount of ammonia rises from one-half gram (normal) to two and one-fifth grams in twenty-four hours in cirrhosis of liver.

3. The creatin formed in the muscle is also converted into urea in the liver.

4. The blood contains 1 part in 3,000 to 5,000 parts and the renal artery contains more than the renal vein.

5. In the case of leucin, there is distinct evidence that the conversion into urea is effected by the liver.[8]

6. The amount of urea is increased principally by proteid food.

The amount of urea is augmented in congestion of the liver or markedly diminished by such diseases of the liver as yellow atrophy, diabetes and hepatic cirrhosis.

8. In those diseases of the liver which interfere with urea formation, the immediate precursors of urea such as leucin, tyrosin, ammonia, cyanic acid, etc., are eliminated with and are found in the urine. It is evident therefore, that urea is formed in the liver from various substances brought to it by the blood stream, that the original source is the proteid foods, and that it does not all represent tissue metabolism; the amount of urea depending upon or being influenced by foods, breaking up of body proteids, diminution of or loss of blood, plenty of water and drugs—as morphin, the salicylates, mercury euonymin, arsenic, etc.

URIC ACID.

This is one of the unilluminated pages in physiology. But in the following brief note I give the more recent views concerning this important, though much disputed question and I venture to quote rather fully and to give many references because the observers are not by any means a unit in regard to theories. The views of Sir Wm. Roberts seem to me to be particularly well sustained by evidence.

Uric acid is the nitrogenous end product which, next to urea, carries off most of the nitrogen from the body. The amount varies from 8 grains (average) to 35 grains on a flesh diet. Proportion to urea 1 to 45 (Landois), 1 to 32, (Haig, "Uric Acid," p. 10.)

OCCURRENCE.

1. *Free Uric Acid.*—Not known physiologically, neither in the body nor in the urine. Known clinically and pathologically as the crystalline sediment in the urine, and as gravel and calculus in the urinary passages.

2. *Neutral Urates.*—Not known physiologically nor pathologically, only known as laboratory products.

3. *Bi-Urates.*—Known pathologically as components of gouty concretions in the tissues. Known in the urine only after the secretion has undergone (ammoniacal) fermentation. It is doubtful if they ever exist physiologically in the blood or the tissues.

4. *Quadri-Urates.*—These are specifically the physiological salts of uric acid. They exist normally in the urine and probably in the blood. They constitute the entirety of the urinary excretions of birds and serpents. All the morbid phenomena due to uric acid arise from secondary changes in the quadriurates. (Sir Wm. Roberts, "Uric Acid, Croonian Lectures" 1892, p. 31.) He also says (p. 38): It would appear that whenever uric acid exists in the healthy body, it exists exclusively as quadri-urate. The quadri-urates may, therefore, be regarded as being in a special sense the physiological salts of uric acid, and as constituting the only form in which uric acid subsists in the living body in the normal state. It may, moreover, be inferred further that when uric acid gives trouble and originates morbid phenomena the mischief arises proximately from the uric acid department, in one direction or another, from this normal state of combination.

Viewed in this light, pathological gravel may be regarded as due to an exaggeration of the conditions which prevail in a less pronounced degree in the normal state; and an elucidation of these conditions may be reasonably expected to throw light on the etiology of gravel and calculus, and perhaps furnish hints which may be turned to therapeutical uses. The conditions of the urine which tend to accelerate the precipitation of uric acid are:

1, high acidity; 2, poverty in salines; 3, low pigmentation; 4, high percentage of uric acid.

The conditions which tend to postpone precipitation are:

1, lessened acidity; 2, richness in salines; 3, richness in pigments; 4, low percentage of uric acid.[9]

The foregoing conclusions furnish a key to the rational therapeutics of uric acid gravel, which resolves itself largely into preventive measures. Roberts also says that he found that lithium carbonate was a better solvent of uric acid than is any of the other three carbonates, and this well known fact has led to the universal employment of that remedy in this condition, and more especially to the indiscriminate employment of the various "lithia waters."

In the employment of these waters, the benefit derived is from the *water* and not from the lithia, as shown so well by Bunge (p. 357). Because the combination of uric acid with lithia is more soluble than with soda or potash it is thought best to treat these cases with the so-called lithia water, which simply implies an ignorance of Berthollet's law:

"We know that in solutions of bases and acids, every acid is distributed to all the bases in proportion to their quantity. It follows that only the very smallest portion of uric acid will combine with the lithia, the largest proportion combining with the preponderating quantity of soda which we introduce as chloride of sodium. The largest proportion of lithia will reappear in the urine united with the chlorine, with sulphuric and phosphoric acids. There will be no increase in the solubility of the uric acid."

Cheese is said by Bunge (p. 356) to be especially apt to cause the precipitation of uric acid in the urinary tract. It is much better to keep the urine

[7] Bunge, p. 334.
[8] Foster, vol. v, p. 163.
[9] Roberts, p. 54.

alkaline by a diet of fruits containing the vegetable organic acids. After combustion of the acids the potash appears in the urine as a carbonate. Potatoes cause a strongly alkaline urine because they contain little albumen and therefore little sulphuric acid, and much malate of potash which is converted into a carbonate. Citrate of potash is probably the best drug to employ. Dose, 40 to 60 grains at night.

ORIGIN OF URIC ACID.

The locality of the formation of uric acid in animals has not been experimentally investigated, although this seems important from physiological as well as from a pathological point of view. The most complete investigations upon the subject of recent times have been made by von Schroeder and Minkowski. (Bunge, p. 342.) Minkowski shows that in birds, ammonia is a normal antecedent of urea, and that the uric acid is formed synthetically in the liver by the union of ammonia and a non-nitrogenous substance and imagines this latter to be lactic acid, having a common source in proteids; that it is increased by proteid foods and is independent of carbohydrates. This form of lactic acid is saccolactic acid and not the lactic acid produced by the fermentation of the carbohydrates.

In cirrhosis of the liver and in cases of phosphorus poisoning large quantities of lactic acid have been observed in the urine.[10] The liver is therefore probably one of the places of uric acid formation. In leukemia the amount of uric acid is double that in health on the same diet. It is not an antecedent of urea.[11] It is not a product of suboxidation.[12]

REMARKS ON THE TREATMENT OF DIABETES.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

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It will be my aim in presenting the subject of the treatment of diabetes, to call attention to some facts which my own experience has impressed upon me and to one or two of the most recent suggestions that have been made in regard to it.

I believe that patients are often placed too quickly on a rigorous diabetic diet. A sudden, very great change in one's regimè will invariably disturb the appetite and if only one or two articles of food are constantly eaten a disgust for these will be produced. Very considerable depression is frequently noticed after such changes. In two cases that came under my observation, though in the practice of others, the sudden restriction of them to a diet that was uncongenial produced a disinclination for food, and growing out of this a diminished secretion of urine and apparently great mental depression and physical malaise which soon culminated in fatal diabetic coma. There may have been no causative relation between the restriction of the diet and the fatal result of the disease but as I watched the progress of the cases it seemed as though a degree of mental and physical depression was produced that intensified the disturbed nutritive changes which the disease caused. Often patients to whom a diabetic diet is distasteful can be educated to take it and even enjoy it. To accomplish this it is best to first ascertain what the individual's habitual regimen is. It can be modified day by day by diminishing first the amount of the articles that must finally be dropped and later omitting them altogether. In a majority of cases this is not a long process. By the end of the first week patients can usually be gotten onto a sufficiently restricted diet.

Moreover, it is frequently not necessary for patients to limit themselves to a strictly diabetic diet. How much of farinaceous food can be safely permitted to any one individual can only be learned by experiment. If the taking of a potato each day for dinner does not increase or its omission diminish the amount of sugar excreted daily by the kidneys it can, I think, be taken with safety. The diet which I prescribe is similar to that usually recommended. I generally permit the use of a little bread except in the severest cases and I prefer that patients should use ordinary wheat bread rather than gluten bread, for a feeling of false safety is usually engendered by its use and it is eaten too freely. I am inclined to believe the statement made by many good chemists that all the gluten flours on the market are very impure and contain a large percentage of starch. In a half dozen samples of such flour that I have tested starch was present in large amounts. Macaroni is forbidden in some diet lists and permitted in others. Practically, I find it can be taken without detriment by most diabetics.

Of drugs that have been recommended and somewhat widely used the last two or three years antipyrin has been in my hands the least useful. Germain See claimed for it a strong controlling influence over the production and excretion of sugar. In his hands it seemed to be of marked benefit. He recommended it especially when patients were weary of their diet, as by its use it was possible to return for a short time with safety to a mixed diet. I have had an opportunity repeatedly to try it in cases of moderate severity, cases that are amenable to treatment but relapse often. In these cases I have observed no uniformly good results from the employment of the drug. In most instances the glycosuria did not seem to be modified at all by it. In a few cases it seemed decided beneficial. Whenever I attempted to rely upon the administration of antipyrin and to discontinue the regulation of diet an increase of sugar in the urine took place. I was greatly disappointed in these results for I rely upon no one's therapeutic judgment more than upon Germain See's.

No drug has seemed to me so uniformly to give good results as Clemen's solution of arsenic and bromin. In 1885 I published a series of cases that were treated with this drug with good results. I might now extend this list very much for I have tested it thoroughly in nearly two hundred cases. In the brief time allotted to the discussion of subjects it will, however, be better to state conclusions and the basis for them rather than to enumerate cases. I have had under observation four diabetics who would not adhere to even a tolerably restricted diet. The administration of Clemen's solution was uniformly followed by good results. In other cases, and they have been more numerous, a strict regimè reduced the excretion of sugar to a certian point, but further improvement could not be obtained even by

[10] Bunge, p. 345.
[11] Bunge, p. 359.
[12] Bunge, p. 329.

several weeks of perseverance. In such cases I have seen the sugar greatly diminished and in almost every instance disappear entirely from the urine under the influence of Clemen's solution. These cases seem to demonstrate the good effect of the drug. Its mode of action can not be explained.

Indeed, our lack of knowledge of the cause and exact pathology of diabetes makes all treatment empirical. It has been shown that arsenic lessens the glycogenic activity of the liver and it has been supposed to energize oxygenation of the blood and therefore of the tissues. Theoretical explanations of its good effects in diabetes have been based upon both of these modes of action. There is however no experimental evidence that Clemen's solution acts even in these ways. By it, not only is the quantity of sugar in the urine diminished but usually the amount of urine and urea excreted is also lessened. In a few cases of great chronicity in which there are undoubtedly anatomical changes in the kidneys such as glomerular dilatation or arterial sclerosis of the renal arteries, there will be an excessive diuresis in spite of the administration of Clemen's solution.

The following case will illustrate well the therapeutic action of the drug in a case of moderate severity and great chronicity, that was not at all perfectly relieved by treatment of other kinds or persistent dieting: A physician suffered from diabetes for seven years. During that time his urine was never free from sugar. In health his weight was 230 pounds. When he began the use of Clemen's solution he weighed 177 pounds. He was unable to walk more than two or three squares without much fatigue. At this time there was evidence of incipient pulmonary tuberculosis. January 21st, he began the use of Clemen's solution; he made that day 87 ounces of urine in the twenty-four hours of a sp. gr. of 1038, which contained 50 grains of sugar to the ounce. Therefore 4350 grains were excreted during the day. February 12th, 66 ounces were passed containing 23 grains of sugar to the ounce and having a sp. gr. of 1030. February 23d, 36 ounces with a sp. gr. of 1029 were passed containing 15 grains of sugar to the ounce. April 5th, 45 ounces of urine were made in the twenty-four hours of a sp. gr. of 1020, containing only 3 grains of sugar to the ounce. April 26th, there was not a trace of sugar in the urine. He had gained eight or ten pounds in weight. He was able to do difficult operations without especial fatigue and to attend to his practice easily. Up to this time, whenever he attempted important operations or was much worried over cases of severe illness the quantity of urine was increased and usually the amount of sugar excreted was also. No such effect was now observable. To quote his own words: "I have been a sugar factory for seven years, and now for the first time am not making any. Yet I was under treatment continually and always observed a strict diabetic diet. Lately my diet has been more promiscuous." These words were written April 29.

In the following June he suffered from a severe attack of pneumonia which left his lungs permanently crippled. In July of the following year he died of phthisis pulmonalis. There was no return of sugar in his urine after the date of the above quotation. He continued the use of Clemen's solution for two months or a little more after the glycosuria ceased.

A similar experience I have had repeatedly so that I can not but feel that the drug has some specific action upon the disease. The dose should be gradually increased to the point of toleration provided all the effect that is desired is not obtained before that point is reached, which is very frequently the case. It is best to begin with three minim doses. Five minims is well borne but in several cases when treatment was begun with this dose and the patient placed within a few days upon a diabetic diet the urine diminished rapidly in amount and the quantity of sugar excreted also rapidly lessened, but a feeling of depression, weakness and general discomfort was very marked until tolerance to treatment was obtained. I have not, however, noticed the same discomfort when treatment was begun more cautiously and we were contented with apparently slower improvement. The dose of the drug can be increased to ten or fifteen minims repeated three times daily. It is rarely necessary to give more than eight drops at a time. Occasionally unpleasant side effects are observable from doses of six or eight minims. These have been in two cases slight œdema of the eyelids and in one instance also very slight œdema about the ankles. In one case, whenever the drug was administered steadily in eight drop doses for several days a mild conjunctivitis was produced. In another instance a pharyngitis was uniformly provoked by ten minim doses if long continued. Three times I have observed nausea caused by it, but this ceased so soon as the drug was administered in a larger amount of water. A tolerance to the drug is very slowly acquired, which will make it necessary occasionally in some relapsing cases to use larger doses than had been required in previous attacks to produce desired effects. For instance, one gentleman who has been under my observation continuously for seven years has almost annually a mild relapse which is usually relieved quickly by treatment. He is careful at all times about his diet but does not find it necessary to maintain at all times a strictly diabetic one. During the last winter sugar reappeared in his urine. Its amount quickly lessened under careful regulation of diet but for four months it could not be made to disappear. He took Clemen's solution in eight minim doses which in all previous attacks had been sufficient. It did not seem judicious to increase this dose for several times disagreeable pharyngitis had been produced when slightly larger amounts were given. So soon, however, as the dose was increased and pushed up to twelve minims the glycosuria disappeared. A slight but not troublesome pharyngitis was provoked by it.

Codia and morphia are certainly useful in lessening the glycosuria and mitigating other symptoms of the disease. They can be administered interchangeably, each in its appropriate dose. The best effects are obtained from large doses given persistently for a long time. Since I have found Clemen's solution so useful I have rarely used the opiates in diabetes because they derange appetite and digestion, and when used long will sometimes cause the symptoms of chronic morphineism. In the severest cases I occasionally use them as adjuvants.

During the last year I have employed in three cases the arseniate of strychnia. The cases were not severe and in each case the glycosuria disappeared. They were all placed upon a diabetic diet. It is difficult therefore to say how much of the good effect of treatment was due to the diet and medicine.

One case was of unusual interest because of gangrene of one finger which complicated it. In July of 1892, the patient came to me with the history of a rapid loss of flesh, frequent vomiting and purging, copious urination, much thirst but no appetite. I could not obtain a sample of urine at this time and did not see him again for ten days. He was then feverish, with a quick full pulse and mentally dull. He had made very little urine for several days although there was a strong urinous odor about his person. His bladder was empty and no urinalysis could be made. He left the city at once and was not seen again by me until September. The last joint of the ring finger of the right hand was gangrenous. It was dry, hard, black and without sensibility. The rest of the finger was much swollen and very painful. He had recovered entirely from the attack of stomach and bowel trouble from which he suffered in the summer but he had not regained his flesh perfectly. His appetite was fair, not excessive and he suffered from no noticeable thirst. He urinated often, three or four times at night. On the 7th of September he made four quarts of urine. Its sp. gr. was 1030. It contained eight grains of sugar to the ounce. His diet was gradually restricted and he began the use of the arseniate of strychnia in doses of $\frac{1}{30}$ of a grain. In ten days the quantity of urine voided was diminished one-half and it contained only one and one-third grains of sugar to the ounce. On the 24th he made three pints of urine which contained no sugar. There was no longer pain or swelling in the finger though the necrosed end was still firmly adherent. Sugar reappeared in the urine about the middle of October. During the two weeks preceding its reappearance being so much improved in general health and having no glycosuria he was permitted to partake sparingly of potatoes. On the 20th, four quarts of urine was secreted of a sp. gr. 1030, containing three and one-fifth grains of sugar to the ounce. There was some glycosuria for the next two weeks. The 4th of November there was none, the necrosed tissue had sloughed off and he was feeling well. During the next six weeks there was no return of diabetic symptoms. The arseniate of strychnia did not in this or the other cases in which I have used it exhibit a decidedly controlling influence over the diabetic condition as the Clemen's solution has done in other instances.

In 1891 I began to use pancreatic preparations tentatively. The somewhat frequent involvement of the pancreas in gross lesions in diabetes suggested that possibly a fault of digestion might be at least partly the cause of the glycosuria. As pancreatic diabetes is not very common and as we do not possess evidence that a lesion of this organ is certainly the cause of the disease I had little hope of success in the trials. I used at first Fairchild's essence of pancreatin as an adjuvant in the administration of Clemen's solution. I tried it in twenty cases without noticeable effect. Such a trial is not a fair one as it is impossible to judge whether any good was accomplished by the adjuvant or whether all the results obtained came from the arsenical preparation. During the last year such good results have been obtained from the administration of thyroid extract and gland substance in myoxdema that I was stimulated to give the pancreatic preparations a better trial. I was still more incited to do this by the growing notion that the pancreas is not only an organ secreting a juice for use in the intestine, but one forming some substance which absorbed into the blood is essential to the maintenance of good nutrition. I give the essence of pancreatin in two cases without restricting the diet or using other drugs. In neither of these cases was there any improvement during the ten days of trial. There was some daily fluctuation in the percentage of sugar in the urine, its specific gravity and quantity. The general symptoms such as appetite, thirst and weakness were apparently uninfluenced. After the ten days of trial the patient's diet was gradually restricted and the pancreatin treatment was continued. The glycosuria lessened in one case steadily until the sugar disappeared; in the other a point was soon reached beyond which improvement did not take place until Clemen's solution was employed under which the glycosuria disappeared for weeks at a time, though it still returns occasionally. I have since tried powdered pancreatin in three cases but without appreciable results. In the *British Medical Journal* for January 14th, 1893, there were two articles, one by Neville Wood, the other by H. W. G. Mackenzie which gave the results of their trials of liquor pancreaticus in similar cases. In the two cases to which Dr. Mackenzie gave the drug, the feeling of well being was greatly increased, the lassitude and weakness was greatly lessened, the quantity of urine voided and the thirst were moderately diminished, but the specific gravity and the relative quantity of sugar in the urine was unchanged. Both of these patients were put upon a diabetic diet. The first of Dr. Wood's patients was advised to restrict the diet but carried out the directions very imperfectly. His general condition improved greatly, his weight increased and thirst diminished. The quantity of urine lessened one-half and excretion of sugar one-third. The second case was not dieted. Her general condition improved. She gained weight, but the thirst and the amount of sugar excreted increased while the quantity of urine voided remained about the same. This patient finally died of diabetic coma.

In more recent numbers of the same journal there are reports of a few more cases treated with pancreas or its extracts. A detailed analysis of symptoms of two cases is given by W. Hale White. His patients were dieted and simultaneously fed raw pancreas, or fluid pressed from it was administered hypodermatically. A marked diminution in the quantity of sugar excreted occurred in one case and no change in this regard was observed in the other. In neither case was there any diminution in the quantity of urine excreted or urea eliminated or in its specific gravity. Under treatment with pancreas the patients felt better and gained a few pounds in flesh. One patient was much troubled with an erythema and transitory fever while he took the raw pancreas. W. K. Sibley described a patient who improved in strength and feeling of well being while using preparations of pancreas, but the amount of urine voided, its physical characteristics and the amount of sugar it contained was unchanged. A. L. Marshall reported a case that improved upon codia. When liquor pancreaticus was administered the feeling of improvement was maintained, although the amount of urine excreted and the amount of sugar it contained and its specific gravity increased.

From these few trials and reported cases we must conclude that pancreatin preparations have no decided value in the treatment of diabetes.

65 Randolph St., Chicago.

HEADACHE.

Read in the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAMES W. PUTNAM, M.D.

BUFFALO, N. Y.

Headache is a symptom arising from such a variety of constitutional and local conditions, that to treat it properly it is necessary to arrive at a just estimate of the patient's standard of health. For no other symptom is it more important to carefully examine the patient as to heredity and constitutional taint. As to heredity, the inheritance may be direct, or it may be that the neuropathic parents, who may have been epileptic, or insane, or alcoholic, have transmitted to their offspring an instability of the nervous system which, instead of being of the same variety as that of the parent, has manifested itself as headache arising on various pretexts, as fatigue, worry, eye strain, etc.

Having determined the fact of inheritance in a given case, the examination of the patient requires a correct estimate of the constitutional conditions which may be present, whether the patient has been afflicted with syphilis, malaria, rheumatism, its allied condition, lithemia, or arterial disease.

A most careful inquiry should be made as to the digestion and the condition of the alimentary tract, as in the disorders of stomach and bowels we find a most common source of headache. Indigestion in its various forms and constipation are responsible for a large portion of the headaches of to-day.

An examination of the urine may reveal a diminution of excretion of urea, which often is responsible for headache. The presence of uric acid crystals, of albumen, of sugar, all indicate a line of treatment which must be followed if we would relieve the distressing symptom.

After we have determined the presence or absence of these conditions, we are prepared to study the headache itself, when our inquiry should be directed to the history of this particular symptom, the original attack—under what circumstances did it develop? Often we get valuable information on this point. The first headache may have come on when working in the sun on a hot summer's day. It may have developed after prolonged work at books, in which both brain and eyes are overtaxed. It may have followed a fall. In all cases the history of the first headache is of great value, and often suggestive of a line of treatment.

Having a history of the origin of the headache and its duration, the study of its character naturally follows. It may be continuous or intermittent. If the latter, it may occur at stated regular intervals and last a definite length of time, or it may occur at irregular intervals, each attack seemingly following a directly exciting cause, which in some cases may be an over indulgence in eating or drinking; insufficient sleep; anxiety; prolonged mental strain, or prolonged use of the eyes, which may or may not be normal.

Having established its type as to periodicity, the study of the pain and its location must be learned. As to location, it may be diffuse over the entire head, and may appear to the patient to be superficial, but it is more usually described as being deeply seated. It may be localized as frontal, vertical, occipital, or one sided.

Frontal headache we sometimes find due to a gastric cause; to anemia; to fever, and often to prolonged mental work.

Vertical pain is often due to gastric disturbance, as is also occipital.

When, however, we find headaches which are not due to altered blood states, nor to any of the causes to which I have alluded, there is still the great cause of ocular defects. This cause may be operative alone or in connection with some other, but wherever found, whatever it may be, I believe that it should be corrected. Whether the error is one of refraction or of lack of muscular balance it, in my opinion, is a cause which must be removed.

Having now thoroughly examined the headache case, how may we classify it, for upon the proper classification depends the treatment adopted.

Headaches may be either anemic or congestive, toxic, neuralgic, organic, neurasthenic or reflex.

The anemic headache is commonly found among people convalescent from disease of exhausting character; in large numbers of the poorly fed, hard worked young women in offices, shops and schools, and in the young society women of the day. It is usually of the diffuse variety, but it is often more severe in the frontal region and back of the eyes. In cases of chlorosis the pain is sometimes very intense. It is not constant, but attacks are easily brought on by exertion or prolonged reading. This latter cause probably operates by reason of the weakened condition of the muscles of the eye, which share in the general poor nutrition of the body. The diagnosis of this type is rendered easy by the accompanying symptoms, which exist in varying degree, of faintness, vertigo, palpitation, breathlessness, dizziness on rising suddenly, and improvement of the headache by lowering the head and elevating the feet.

The treatment of the anemic condition need not be described here. The treatment of the attack is often successful by giving a diffusible stimulant, as spirits ammonia arom., one drachm, to be repeated if necessary in one-half hour. Sulphate of quinia in five or ten grain dose often is effectual in arresting the pain or at least in moderating it.

The congestive headache affects the whole head. It occurs often in school children. It is rarely due to overwork—more often to gastric and intestinal causes. The pain is throbbing, increased after meals, and is usually worse in the latter part of the day. Sleep is often tardy, and when it does come it is often disturbed by bad dreams. The patients are as a rule all children of neuropathic ancestry, and are liable to suffer from other diseases, as epilepsy and chorea. As a rule they are dull at school, or else bright in some things, dull in others, irritable on the play ground and changeable in their moods. Such patients, it should be remembered, are always in danger. It is possible that these headaches, in a limited number of cases, may be forerunners of more serious mischief—tubercular meningitis. These children should be taken out of school and the entire attention be given to making good active physical beings, not intellectual prodigies of them. They

should be given a system which they are to carry out most religiously. This should include mild gymnastics, cold sponging, salt water rubbing, outdoor plays, but particular care must be taken that the child does not become exhausted, and to that end I make it a rule to order that the child come in at four o'clock and rest an hour. In many cases we find such cases are best treated by the mixed bromides, five to ten grains, t. i. d., for a few days only.

Regulation of the diet, which should include avoidance of sweets, prevention of over eating, the giving of fruits, and attention to the bowels, should complete a cure.

In adults, congestive headaches more frequently occur in men and are often due to frequent wining and dining. The head pain is described as being a feeling of fullness, a throbbing, beating head. The treatment by blue pill and salts, with dietary restrictions, is effectual in curtailing the duration of the attack. A full dose of bromide of potash, or of one of the effervescent salts of caffein or antipyrin often relieves the pain. The English gentleman prescribes for himself on such occasions the juice of half a lemon in a glass of apollinaris water.

There is also the congestive headache due to prolonged brain work. It is perhaps needless for me to remind you that when an organ is functionating it requires more blood than when at rest, and that after prolonged mental work there sometimes is a passive cerebral congestion. This is seen in lecturers, ministers, jury lawyers, and students cramming for examinations. It is usually accompanied with restlessness, general fatigue and insomnia. The patients complain of a feeling of pressure on top of the head. There is also dizziness, ringing in the ears, and photophobia. If these attacks are frequent there gradually develops a capillary dilation, due to the frequent active hyperemia, and then a chronic congestion may occur, and we then have a chronic headache most difficult to cure. These headaches are made worse by the worker taking stimulants as a spur to the flagging energy.

My treatment of these cases is, cessation of work where possible; first thing in the morning before rising, a cup of black coffee; a spinal douche, 40 degrees, at ten or eleven o'clock

℞. Tinct. nucis vom 1 oz..
Elix. gent., 2 oz.
Acid. phos. dil., 1 oz.
Elix. pepsin, 2 oz.
Sig: A teaspoonful in water three times a day.

If the heart is flagging, give a little digitalis. At night I have them take a sponge bath with cold salt water before retiring, well rubbed, in order to stimulate the peripheral circulation, and deplete if possible the engorged cerebral circulation. If, after being in bed one hour they do not sleep, I give

Ergot, m. xxx.
Pot. brom. gr., xxx to lx.

In the congestive headache of old people I have had some good results from continued small doses of ergot. In some chronic cases which have yielded to no other treatment, potassium iodid in 15 to 20 grains a day relieves the severity of the pain.

In the headache occurring at the menstrual period in which the pain is frontal, extending from the root of the nose over the eyes to the temples, Dr. Glasgow of St Louis, reports that in a number of cases he has given immediate relief by pricking the congested cavernous bodies, and thus causing free local blood letting. This I have never tried, as it requires some manual dexterity which I do not possess.

The syphilitic headache is marked by great violence. The pain is usually vertical and may be diffuse or localized. Its characteristic accompaniment of scalp tenderness and nocturnal increase of pain make the diagnosis sure enough to warrant questioning the patient as to his personal history, and to treat him antisyphilitically, even though we meet with a denial of specific disease.

I have not found as prompt results with small doses of mercury in these cases as I have with doses of potass. iodid of from 15 to 20 grains three times a day. This may be due to the fact that the majority of my cases have had the headache as a late symptom.

The headache due to cerebral growth, the toxic headache, arising from the use of drugs, the headache occurring in the course of acute febrile diseases, of which typhoid fever and la grippe are examples, the headaches which occur in rheumatic, gouty and lithemic subjects form a group, the treatment of which is a part of the treatment of the disease of which it is a symptom, and will not therefore receive special consideration here.

The headache due to reflex causes, chief of which is some eye defect, are to the general practitioner of the most baffling character. This is so because, even though the patient is asked if there is any trouble noticed in using the eyes, we often are answered: "No, my eyes are perfectly strong. I can see perfectly." An examination with the test type, which is the only way we who are not oculists have of examining the eyes, often reveals what we estimate as normal, or near enough to normal vision, and then we dismiss the eye question from the case. Or perhaps the patient may be wearing glasses, and will mention the name of some well known oculist who fitted the glasses, and pronounced them correct. The general practitioner must indeed be bold who will persist in clinging to the idea that there is still an unsolved ocular problem. But my experience with rather a large number of patients of this class has forced me to the conclusion that oculists may differ in their mathematical calculations as surely as we will differ in our prescriptions for disease. It is not uncommon to have a patient examined by two different competent men, and receive different glasses from them. This, I believe, is not always because the measurements taken differ, but because oculists differ as to the advisability of giving full correction or only a partial correction. What may be the correct view to be taken in case of fitting glasses for correcting defective vision unaccompanied by nervous symptoms, it is not within my province to say, but in those cases in which the defective eyes are accompanied by headache, I am convinced that in the very large proportion of chronic cases the error must be fully corrected, and corrected after the use of a midriatic before we can eliminate the eyes from the case.

In reference to the cases in whom we find loss of muscular balance, we must wait for the decision of the oculist as to the relative value of tenotomies and prisms.

In the cases due to ocular defects which have existed for a long time, the patients will as a rule require treatment for a considerable time after the proper correction has been made.

After a careful study of all headache cases, there still remains a considerable number in whom we can find no ascertainable cause, and where we meet with but little success in treatment. It is these cases that give the general impression that headaches cannot be cured but must be endured. It is also in these cases that we must avoid recourse to the hypodermic or other use of morphia, for they become habitues only too easily.

Leaving out those cases in whom we can find no definite cause, I believe that by careful study of individual cases a large majority can be greatly improved, if not cured.

388 Franklin St., Buffalo, N. Y.

DR. J. T. WHITTAKER, Cincinnati, O.—We all of us come to a time when we suffer from eye strain; when we reach 45 we all have to use glasses, as a rule. In only the minority of us who suffer from headaches it has seemed to me the fatigued condition of eye strain and headaches which it has excited is always corrected by glasses. It is the experience of the majority that glasses do not correct the headache. Besides the infective diseases the headaches in adult life, especially male adult life, should suggest to us first, Bright's disease; a persistent headache is nearly always accompanied by increase of urine, and we are often led aside because we fail to find albumen in the urine. We should take the specific gravity and observe in this it is very light; then when we have the urine measured we find it has increased. So far as syphilis is concerned, there are very few cases attended with headaches. There is a disease associated with syphilis accompanied by exaggerated headache, and I have risen to see if my experience coincides with my colleagues. Gonorrhœa is attended with headache, especially that kind which attacks the posterior urethra, which is very frequently entirely independent of any scars; where the gonococcus produces restlessness, insomnia, jactitation, and above all an exaggerated headache. These cases are by no means uncommon; they often pass without diagnosis, especially where the history is denied, but on microscopical examination you can discover the so-called gonorrhœal threads that are passed in the first urine in the morning. These cases are not relieved by any ordinary treatment of gonorrhœa, or any ordinary injections. They require topical treatment by the catheter which reaches the prostate gland with the nitrate of silver. First a 2 per cent. solution, and increased gradually to 10 per cent. That relieves the jactitation and restlessness of the nerves, restores the vitality and relieves the exaggerated headache.

DR. JAS. W. PUTNAM, Buffalo, N. Y.—I have only one word to say. I am glad the doctor who has just discussed this paper agrees with me that after you have fitted the glasses properly to the eyes we find then the case is not cured; the treatment must go on afterwards. The treatment of headache following gonorrhœa is new to me; I have never met with it.

AN ADDITIONAL NOTE ON THE USE OF STROPHANTHUS IN THE TREATMENT OF EXOPHTHALMIC GOITRE.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. D. FERGUSON, M.D.

TROY, N. Y.

At the meeting of the New York State Medical Association on October 23, 1890, I gave my experience with the use of strophanthus in eight cases of Graves' disease. The paper was printed in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in Vol. xv, No. 21, 1890, page 785.

Previous to writing that paper only two or three references to the use of strophanthus in this disease had been seen by the writer in current medical literature, and since that time the year books and journal articles recommend other therapeutical measures as a rule—rarely referring to this recent addition to our materia medica. While my own use of the drug in this particular disease antedated by more than a year any reference to it in the medical literature, still it had been recommended before the publication of my cases, so that I have no claim to originality or even priority to maintain, and only write this brief note to call attention again to its usefulness.

Since the instances of the disease noted in the paper referred to, I have not kept a detailed record of the cases coming under my observation, but I have probably had fifteen or twenty additional cases in which strophanthus has been used. In all of these an improvement has resulted, though the degree of amelioration of the symptoms has varied. In one, a young woman 22 years of age, who had exophthalmos in what might be termed a hideous degree, and was incapacitated for even moderate exercise by the tachycardia, the pulse rate being even at rest from 160 to 180, I was unable to reduce the pulse below 110 or 120; but though in appearance she is not notably improved by the treatment, she is quite gratified with the results, for she is able to attend to household duties and travel for pleasure, even enduring without inconvenience several days of shopping in an occasional visit to New York city.

So far as I have been able to follow the cases related in my first paper, the improvement has continued. There was no instance of a relapse, though some have been obliged to continue the use of the drug the greater portion of the time. The first case related in my former paper, that of a woman now over 60 years of age, and who was an extreme sufferer from the disease, has been able to keep herself in a condition for active exercise by the nearly continuous use of strophanthus.

The fact that the tachycardia is often the earliest manifestation of the disease has enabled me in two instances to suspect the approaching development of the exophthalmos and the goitre, and so bring the patient under the influence of the drug before notable deformity had occurred in relation to the eyes and the neck, though there was sufficient change to justify the diagnosis before the tachycardia was relieved.

It is not my wish or intention to urge strophanthus as a specific in Basedow's disease, for while my own experience has uniformly given favorable results, it is manifest that this complex of symptoms may be associated with irremediable changes in the nerve centers, or there may be conditions more favorably influenced by other drugs or measures. Many cases benefited by strophanthus may need additional therapeutical agents, and in several I have felt the necessity for the administration of iron, arsenic and strychnin. It has seemed to me that belladonna would prove of value in some cases, and next to strophanthus I should regard it as our most valuable agent. It has not been my fortune to observe favorable results from electricity, but the fact that some of the cases are mild and tend to a favorable termination should be taken into consideration in forming our conclusions. I am satisfied that this favorable course in some cases has been

the result of the natural tendencies of the disease, rather than any effect of therapeutical measures. In my early use of strophanthus I endeavored to protect my conclusions from error in that direction by limiting its use, not only to undoubted cases of the disease, but it so happened that the early trials were made in severe cases.

If the individual case is favorably influenced it will then be wise to inform the patient of the probable necessity for a prolonged use of the agent, for though a few months often seem sufficient in some cases, others may require its use for an indefinite number of years.

The question of dosage is one of considerable importance, for it varies greatly in individual cases. When strophanthus was first introduced by Frazier its dose was given at from four to seven drops of the tincture, but it was soon manifest that either the individual specimens of the drug differed greatly in potency, or personal susceptibility was an important factor. It is true that from five to ten drops will occasionally give notable results, but my own experience has shown that much larger doses are often required. My present plan is to have the patient secure a sufficient quantity of the tincture to obviate the necessity for frequent changes of the preparation, and then to begin with eight to ten drops at each of the three daily meals, using always the same dropper. After a week, if no benefit results, this dose is increased by one or two drops, and in this way continued and increased until its beneficial results are obtained or until there is evidence of injurious effects, though so far I have not been obliged to cease from its use on account of toxic symptoms. Injurious or unpleasant effects will furnish indications relative to its continuance or the dosage.

In this way I have increased the dosage to fifty drops three times daily—an amount found by actual measurements to be about thirty-five minims—before relief was experienced, and this large dosage has been continued for several months, not only without unpleasant effects, but with great relief.

It seems the part of wisdom to have the patient purchase the drug in considerable quantity at each time, thus obviating the necessity for frequent changes in preparations, and when taking large doses it may be well to take somewhat less than the maximum dose when a new specimen is procured, for it is a clinical fact that the activity of the preparations is not uniform.

DR. HOBART A. HARE, Philadelphia, Pa.—The observation of so many cases of what I consider, from a fairly large experience in hospital practice to be a rather rare disease, enables Dr. Ferguson to make much more authoritative statements than most of us can make in this affection. I do not know the percentage of this disease because I have not had the opportunity of studying the subject recently, but I am sure even fifteen cases within a short time is a rich experience in this trouble. I have one hundred and forty beds under my care six months in the year in a large hospital and see from 300 to 400 cases a day in dispensary work, and during the last four or five years I have never seen more than two cases of true Graves' disease. I have seen a number of cases of that condition known as paroxysmal tachycardia, and when I make the distinction between true Graves' disease and tachycardia I mean that all the typical and physical signs of Graves' disease have not appeared more than a few times in this large number of cases. I have used strophanthus I think as faithfully as possible to use it, and have never seen it do any good whatever. I have a case under me who has taken strophanthus in all sorts of conditions until it has come to be the talk in the patient's family, how many changes is that doctor going to make? I have used a combination of remedies, such as belladonna with a little digitalis and sometimes a little nitroglycerin added to the prescription Dr. Ferguson has not mentioned a symptom which I hardly believe he could have failed to meet with from these large doses of strophanthus; that is, a troublesome diarrhœa which usually comes on at the end of the third or fourth day when you are giving moderately large doses of this drug. I have a case in mind in which the administration of five drops of strophanthus produced so much valve trouble at the end of a few days that the drug had to be stopped although it was doing good in the cardiac disease which was not benefited by digitalis.

DR. W. E. QUINE, Chicago—There are few diseases, that tax the therapeutic resources of the medical practitioner more than the one under discussion, and I imagine also that there are few medical practitioners of experience in the management of this disease who have not had occasion to resort to the employment of strophanthus. I have used this medicine in a goodly number of cases in varying doses and states of combinations, and with varying results. Examples of Graves' disease have been under my observation and care in which strophanthus proved to be a sovereign remedy and in which improvement in the condition of the patient began with the administration of that agent and continued until established amelioration, a little less than absolute cure in the majority of instances and in some instances advanced to the point of absolute cure. I have never administered strophanthus with as free a hand as has been done by the essayist. I have noticed, as others must have noticed, the symptom already referred to as resulting from the excessive freedom of use of this agent, namely, relaxation of the bowels. I have also been annoyed in a goodly number of instances by the irritability of the stomach and its intolerance of this agent as other agents of the same general class. It has been uncommon for me to encounter cases of exophthalmic goitre in which it was possible to administer strophanthus as freely as has been described by the essayist. Some reference has been made by one of the gentlemen in the discussion to the comparative infrequency of pure Graves' disease in his own experience and the relative frequency of tachycardia. I have long since reached the conclusion that the derangement of the heart which goes familiarly by the name of tachycardia is in the majority of instances but cases of immature or imperfectly developed Graves disease. Tachycardia may be and often is the primary symptom; it may exist for months or years before the enlargement of the thyroid, or any of the nervous phenomena have had time to develop; it may be the only symptom to attract attention for a considerable period of time. Belladonna has been in my hands a capricious and uncertain remedy; it has been useful in a small number of instances but I have derived quite as much satisfaction from the administration of medicines of the general sedative class whose ordinary effect is that of lessening reflex instability, such as gelsemium and canabus indica.

DR. J. M. ANDERS, Philadelphia—My experience coincides with that of Dr. Hare, so far as the use of strophanthus is concerned in typical cases. In those cases the best results are obtained in the use of digitalis and other remedies that are certain to slow the action of the heart. There is, however, one class of cases in which the combination of strophanthus and digitalis has had most admirable results, that is in arythmia. There can no longer be any question that

strophanthus regulates the contractions of the heart better and overcomes arythmia better than digitalis alone, no matter how large the dose of digitalis that may be employed. Strophanthus alone will not do this to the same extent as when combined with digitalis; it has long been my practice to combine strophanthus and digitalis when there is marked arythmia.

DR. E. D. FERGUSON, Troy, N. Y., in closing the discussion, said: My paper did not intend to exhaust the treatment of exophthalmic goitre; it simply referred to the use of one drug, and I indicated that it was not a specific, although proved to be useful. So far as a genuine cure of exophthalmic goitre is concerned, relief of the symptoms relating to the pulse and to the anatomical condition of the neck and the eyes, I have never seen a cure, and so far as our present therapeutical resources are concerned I don't expect to see a cure, but patients have been improved and comparatively relieved of the dyspnœa, particularly upon exercise.

In regard to the preparations of strophanthus, in my article I called attention to a considerable difference in the preparations—that there seemed to be some material in it of an intensely bitter taste, in some instances of a balsamic nature when separated by putting the alcohol solution into water that was quite disagreeable, would disturb the stomach and also the bowels. I have seen the effect upon the bowels and heart which has been referred to, but by changing the preparation have been able to right them.

In regard to the frequency with which we see these things, it is a fact that diseases often hunt in couples, in triplets and in platoons. In my first paper I related a case where I was called to a patient and when I gave my diagnosis the doctor was frank enough to say he did not know what it was, had never heard of it and never seen it before. In a few weeks he brought another case to me, the second he had met after practicing thirty or forty years. I had seen the disease occasionally up to the time of that paper and since then I have seen it more frequently, possibly because some of my professional brethren have brought the cases to me. Whether the locality has anything to do with the development of this trouble, as it has with simple goitre, is a question. I agree with the gentleman that in many cases of tachycardia it is masked, similar probably to what would amount to a genuine case of exophthalmic goitre if allowed to go on.

In regard to the use of strophanthus and digitalis, I do not regard strophanthus as a specific, but if it is of use it would seem to me that digitalis cannot be of use. I am aware that we cannot place too much confidence in the varying effect of drugs, but if the tincture of strophanthus lessens the heart's action and digitalis while lessening the action of the heart increases the tension we have two different effects.

All my cases were fully developed exophthalmic goitre; there was not only the tachycardia but the enlarged thyroid body and protrusion of the eyeballs, the dyspnœa on exercise and the general nervous symptoms that go with this trouble.

Bad Water for Soldiers.—About a hundred members of the Second Regiment, New Jersey militia, encamped at Sea Girt, were recently taken ill with vomiting and purging soon after their arrival in camp. In nine cases the attack was so severe that a fatal result was feared, but all fortunately recovered. The cause of the illness for a time was shrouded in mystery, but an examination by the State chemist of the water taken by the soldiers proved it to be contaminated with surface drainage; the driven wells from which they drank being only fourteen feet deep.

DIPHTHERIA.

Read before the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY J. B. MURFREE, A.M., MD.
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Diphtheria is an acute infectious disease, highly contagious and dependent upon a specific virus for its inception and propagation. Usually beginning by an involvement of the throat, characterized by exudations locally, and enlargement of the lymphatic glands, soon to be followed by a general systemic poisoning, attended with various paralyses as sequelæ.

At first seemingly a local disease, caused by an inoculation it soon becomes general and assumes a constitutional form of a most virulent character, constituting one of the most dreaded diseases of childhood, from the frequency of its prevalence, as well as the great fatality that attends it. While it does affect the general system finally, yet primarily it is locally characterized by affecting especially the mucous surfaces of the throat though not necessarily confined to these parts, as it may affect the mucous surfaces elsewhere and even the skin.

Locally, its chief manifestation is the formation of a grayish white film or pellicle upon the mucous surfaces and upon the skin when deprived of its protecting epithelium. Usually the virus of the disease is conveyed through the inspiration of the infected air, but occasionally it is communicated by direct contact of the infecting material with a mucous surface.

The history of diphtheria is interesting as well as instructive, and shows that the marked features of a disease will identify it in spite of a difference in the names assigned to it. From the investigations made of its prevalence, the conclusion is that diphtheria is not a new disease but has prevailed with more or less fatality in the remote ages of the world. Certainly it is a disease of antiquity. The name diphtheria was first applied to the disease by Bretonneau of Tours, in 1824. He called it diphtheria from the supposed resemblance of the exudations to leather or parchment. Notwithstanding the fact that this name was applied at so recent a date yet from the descriptions given by ancient writers of a disease (and epidemics of that disease) affecting the throat and prevailing chiefly among children we conclude, from the similarity of the symptoms presented, the class of patients attacked and the fatality attending it, that it was identical with diphtheria of the present day, as we meet with it. An account is given of a malignant sore throat (and even of laryngotomy being performed to relieve suffocation) before the Christian era.

Again, in the early centuries of the Christian era we have some graphic descriptions of a putrid sore throat, the disease sometimes extending into the windpipe and producing death by suffocation.

From the close of the fifth century until the sixteenth the record of diphtheria is broken. It is probable that during the long period embraced in the dark ages, every decade witnessed epidemics of this fatal disease, but if they were observed and recorded the records were lost, the literature of diphtheria sharing the fate of the general literature during this time of intellectual darkness.

Since the sixteenth century medical literature has

contained many essays descriptive of epidemics of an angina whose features tallied well with diphtheria of the present day, so much so that we cannot doubt but that it is the same disease. At different periods and in different countries diphtheria has received different appellations expressive of the leading features of the disease. Introduced into America by adventurers from the old world, diphtheria has prevailed more or less to the present time, with increasing frequency and fatality and has become one of the scourges of our country, no infantile disease being looked upon with more dread than diphtheria. So far as we are informed the natives of America, "the red men of the forest," were not afflicted with any disease except such as were due to climates, seasons and their own indiscretions.

Epidemics of contagious diseases were unknown in this country until the white man put his foot upon the soil and planted the banner of civilization. Cortez and his men in their greedy thirst for gold introduced the small-pox into Mexico. Sailors under Columbus brought the diseases of vice and immorality into America. And in the sixteenth century diphtheria was landed, first manifesting itself at Boston and now "it is to be from appearance above all other maladies, the scourge of America in the future." As the line of civilization advances the physical man deteriorates and with the increase of population there is an increase of epidemics of contagious diseases. Bretonneau investigated the disease extensively in 1821 and with him originated the name of diphtheria. Since then quite a number of eminent medical men have studied and investigated the nature and character of diphtheria. Within the last fifty years diphtheria has prevailed extensively in all parts of America as an epidemic and in some localities as an endemic disease, so much so as to be pretty well domiciled.

It prevails in all sections of the country, in the crowded cities and in the sparsely settled country. Epidemics of the disease have swept over thinly inhabited parts of the country with fatal effects and likewise they have raged in crowded cities with frightful mortality. But it prevails more frequently and with a greater fatality in cities, especially the larger ones. In some of our larger cities the disease has become endemic. The etiology of diphtheria presents an interesting and much disputed question for our consideration. For a great many years past a close investigation of the disease has been carried on and quite a number of experiments have been made upon the lower animals with the endeavor to determine the precise cause of diphtheria.

Its specific cause has been denied by many and for awhile it was considered by some to be due to the same cause as that of scarlet fever. But more recently it has been conceded to be dependent upon a specific, infecting virus. Yet the profession were at a loss to know what this specific cause or virus was. Pathologists labored earnestly to discover the especial cause of the disease, numerous observations were made and many experiments carried on.

In 1868 Oertel discovered micrococci in the pseudo membrane of diphtheria, in the blood and lymphatic vessels and kidneys in severe diphtheria, appearing as "point like, dark contoured round or oval little bodies, isolated and in zooglea." In later investigations (in 1874) he found a larger or smaller number of the bacteria termo accompanying the micrococcus and he expressed more firmly the belief that a bacillus lodging on the mucous surface caused the diphtheritic inflammation. But later observations tend to show that the micrococcus of Oertel does not differ from those found in putrescent animal matter. Later, Kleb discovered a microbe which he claimed to be the cause of diphtheria and his observation was afterwards confirmed by Loeffler. The theory which is generally acknowledged by the profession as correct is that diphtheria is caused by a microbe or microbes; that their action is chiefly on the surface and that the blood poisoning or toxemia which is the cause of the malignancy of the disease is the result of the absorption into the system of the products of the decomposition which takes place at the point of infection; that it is the result of the action of the ptomaines on the blood of the patient and that the ptomaines are the products of a microorganism. The conclusion, then, is that diphtheria is a specific contagious disease and that the constitutional infection is the result of ptomaines produced by microörganisms. Diphtheria does not arise spontaneously, nor does it develop *de novo*, but is produced by a particular cause, a specific virus and that specific virus is a microbe.

The contagiousness of diphtheria is a well observed fact; it is communicated from one person to another as other contagious diseases are, and especially by direct contact. The nature of the disease is such that while it is no respecter of persons, but prevails among the wealthy and refined with as much virulence as among the poor and uncultured, yet the greater prevalence of the disease and the violence of the symptoms in unsanitary localities and conditions are such as to cause it to be classed with the filth diseases.

Whilst it does at times prevail with great fatality in sparsely peopled districts as well as in those that are densely inhabited, yet there is a marked increase in its progress in the groups of cities and towns of our country. Diphtheria is becoming more and more a disease affecting our large centers of population, and less prevalent throughout the country districts.

The disease is fostered and rendered more fatal in its attacks in locations where dampness exists, subject to cold wet winds and where the surface soil is such as favors the retention of moisture and where there is an accumulation of refuse organic matter. Seasons have a marked influence on the prevalence of diphtheria as well as upon its mortality. It is a disease of cold weather and prevails most usually in the fall and winter. The greatest number of epidemics prevail in the fall of the year; the greatest prevalence of the disease is from September to February.

Sex exercises but little influence on its prevalence; there is more excess of attacks in girls than in boys, perhaps because they are more frequently brought in contact with the sick. Age has a decided influence over the incidence of diphtheria. The greatest number of cases by far, both fatal and non-fatal, occur between the ages of three and twelve years. It is preëminently a disease of childhood, yet strange to say it very rarely occurs in a nursing babe.

The prevalence of diphtheria is associated with the prevalence of ill-defined sore throat during its existence from the commencement, during its continuance and after its cessation; and as a conse-

quence many deaths from diphtheria are not recognized but are attributed to croup, laryngitis, etc.

In some instances the prevalence of sore throats progressively develops the property of infectiousness which culminates in a definite, specific type of diphtheria. Diphtheria usually begins as a local disease showing itself first at the point of infection, *i. e.*, where the contagion has been received, whether through the atmosphere or other agents, and an unhealthy condition of the tonsils and surrounding tissues (to whatever cause due) operates strongly as a predisposing cause to an attack when diphtheria is prevalent. Assemblies, especially schools where children are aggregated together tend to increase the number of cases and favor the spread of the disease. Particularly is this true when preceded by a number of cases of sore throat. Diphtheria has been conveyed to distant places by clothing; being carried by means of the exudation. There is a number of instances of the disease being conveyed by means of milk, and in some instances there was strong evidence that the infection was due to the diseased condition of the cow. The direct cause of diphtheria is a microörganism, the bacillus, diphtheriæ, which has been cultivated and is capable by inoculation of conveying the disease to others and also to many of the inferior animals.

The period of incubation in diphtheria is rather short, more so than that of the majority of infectious diseases. It is usually from two to five days, sometimes longer, but rarely, if ever, longer than eight days. The symptoms manifested by diphtheria are characteristic of the disease and are generally well marked. However, in some instances they are so obscured that they are overlooked by the family and even by the medical attendant.

The disease varies greatly in severity; from a very mild attack to the most malignant form of the disease that perhaps we ever have to cope with. I have seen cases so mild that the little patient was scarcely sick enough to be confined to the house, and again I have seen cases so violent from the very outset of the disease that the system was soon overpowered by the poison and in a few days life was extinct. In general it is said by authors that at the commencement of an epidemic the symptoms are more severe than at its decline. In my observation the severity of the disease is the greatest at the height of the epidemic. The cases are milder at the beginning and at the decline of an epidemic and this holds good in all epidemics.

Usually the symptoms of a commencing diphtheria are slight. The patient complains (or shows signs) of languor, lassitude, headache, chilliness, succeeded by a fever, aching in the limbs, thirst, anorexia and sore throat, as evidenced by pain on swallowing. Small children cannot tell their complaints, but the mother notices they are not well; that they fret while nursing, and the expression of the child indicates that it does not feel well. In mild attacks the child may not be in bed and sometimes children with diphtheria run outdoors with other children and thus convey the disease to others. The sore throat may be so slight that very young children may manifest very little if any dysphagia and older ones may not complain.

It is a good plan to examine the throats of all the children under our charge when diphtheria is prevailing and at all times when ill-defined general symptoms are presented. From a neglect of this precaution we sometimes overlook diphtheria until the case is far advanced. A few years ago I was called to see a little boy whose case the attending physician had diagnosed to be only simple croup. There was a difficulty of breathing with a beginning cyanosis. Upon exposing the throat the characteristic exudation was plainly seen upon the tonsils. The mother who stood behind me when she saw into his throat, uttered a piercing scream, and ran from the room exclaiming, It is diphtheria. In less than twenty-four hours the child was a corpse.

In the initial stage of diphtheria the general symptoms so closely resemble those of a bad cold that the disease is liable to be mistaken for it unless there is had an inspection of the throat. In the beginning there is a redness of the soft palate and fauces with swelling of the tonsils, and upon their inner surface are spots covered with a grayish white coating which is quite firmly adherent to the mucous membrane and these will likely be found also upon the soft palate and uvula. These patches may not be observed at the first examination but will be quite evident in a few hours. This is the exudation of diphtheria and may appear as points which sooner or later coalesce, forming a patch or pellicle which becomes thicker and firmer.

In the severer forms of the disease the attack begins abruptly and its symptoms are well pronounced from the commencement. There is a decided fever, with general malaise, thirst, loss of appetite and sore throat, possibly delirium and convulsions, but usually the mind remains clear throughout the attack. The temperature rises to 102°, 103°, or 104° Fah. rarely above this. In my observation a very high temperature is not a characteristic of diphtheria, nor is it apt to continue high long; after the third or fourth day the temperature is but slight. The diphtheritic poison when fully disseminated throughout the system does not tend to markedly increase the animal heat, but so overpowers the nerve centers as to prevent reaction, and when the toxemia is profound there is scarcely any elevation of the temperature; sometimes it is subnormal.

In diphtheria a very high temperature long continued indicates some inflammatory complication. Ordinarily the thermometer is of but little service to us in diphtheria as the amount of fever does not bear any relation to the extent of blood poisoning. A severe attack of diphtheria with great malignancy, rapidly tending to a fatal termination may have a temperature but little above the normal while a mild case may present a comparatively high temperature. A continued high temperature in a case of diphtheria rather indicates some inflammatory action going on than the degree of blood poisoning. But the thermometer is of value inasmuch as it enables us to form some idea of the extent and severity of the complicating inflammation that may be present, whether it be a pharyngitis, tonsilitis, laryngitis, bronchitis, pneumonia or a nephritis or any constitutional disease that may exist as a complication. The pulse in diphtheria is usually feeble and frequent, often very rapid and small. The more malignant the attack the greater will be the feebleness and frequency of the pulse. In slight attacks ordinarily neither the local affection nor the constitutional symptoms are at all violent, but maintain a moderate degree of severity for a week or ten days when they decline and a steady

convalescence sets in. In the malignant type of diphtheria, however, from the beginning or early in the course of the disease, dangerous symptoms are evident and the child's life is in great jeopardy, either from the exudation extending to the neighboring organs or from the development of a deep constitutional infection. The exudation extends into the nares and this is usually a grave sign, not that the infection of the mucous membrane of the nose itself is so dangerous but it affords opportunity for a deep poisoning of the general system that will be severe and prolonged. The inflammation of the Schneiderian membrane may be simply purulent but usually it is croupous and attended with exudations and these sometimes extend outward and cover the excoriated lip. The involvement of the nares is generally secondary to that of the pharynx, yet it may be primary. As the disease advances the swelling of the nasal mucous membrane increases and the breathing is accompanied with a whistling sound, a snuffling; finally the nostrils are occluded and the child breathes only through the mouth; whilst at the same time the glands at the angle of the jaw become inflamed and enlarged.

The extension of the disease into the nares is a source of great danger, for the great number of lymphatic vessels in the connective tissue in and around the nose tend to increase the absorption of the virus and the infection of the system and it also begets a tendency to hemorrhage, which is often profuse and exhausting. Occasionally the disease extends through the Eustachian tubes to the ear producing great pain and impairing the hearing. In some instances it has produced inflammation of the internal ear with the rupture of the tympanum and necrosis of the bones. The eye is also subject to invasion, either through the nasal duct or by direct contact. The exudation may also extend to all parts of the mouth, the tongue, gums and lips—very rarely it involves the esophagus. But the most dangerous implication of all is the extension of the exudation into the larynx, where it creates a mechanical obstruction to the respiration and may produce suffocation. The extension of the exudation into the larynx is characterized by a hoarseness of the voice, croupy cough, difficult and laborious respiration, while the face becomes pale and livid and the lips cyanotic. Possibly the membrane may become loose and be coughed up and the child relieved, but unhappily this is an unexpected termination for most usually the stenosis increases, respiration becomes superficial and more frequent, the pulse feebler and very rapid, stupor ensues and death closes the scene.

Heart failure, the result of the overwhelming of the nerve centers by the poison of the disease is often the cause of death. The kidneys are very frequently implicated in nearly all the severe cases; albuminuria to a greater or less extent is present. Paralysis is a complication of diphtheria, occurring usually as a sequelæ. It most generally affects the throat and materially interferes with deglutition and the voice; occasionally the muscles of the trunk and extremities are paralyzed. The prognosis in diphtheria is not very favorable and at all times is uncertain. The robust and healthy children succumb to the disease as well as the feeble and unhealthy. Many cases of a severe type get well while some mild cases terminate fatally. Therefore we are to be guarded in our prognosis; still under good hygienic management and skillful treatment a fair proportion of cases get well, but diphtheria is to be regarded as a formidable disease attended with a large mortality. The course and termination of a case of diphtheria is uncertain and deceptive. Death may be the result of the poisoning of the blood by a specific virus of the disease or its ptomaines, of septicemia, diphtheretic croup, heart failure, or congestion of the lungs with œdema. The unfavorable symptoms are extensive deposits of exudations, anorexia with nausea, paleness of the surfaces, decided prostration, albuminuria, hemorrhage of the nose, extension of the deposit into the larynx.

In the treatment of diphtheria quite a variety of remedies have been suggested and many different plans proposed, for which great success is claimed. But in my own experience there are but few remedies that are of much avail and certainly none that are specific.

Although the treatment of diphtheria is not very satisfactory and in the hands of the most skilled many patients die, yet with a well formulated plan of treatment faithfully carried out we can hope for gratifying results.

The prevention of the development and spread of the disease is of the utmost importance. Being eminently contagious (in a small area) with a tendency to rapidly spread, the necessity for isolation is absolute and second to isolation is disinfection. Isolation and disinfection constitute the preventive treatment. In the treatment of the disease there are certain general principles by which we are to be guided and we cannot rely upon any particular medicine to cure the disease. The indications for treatment are to destroy or neutralize the local infection, to limit the exudation, the prevent the absorption of septic matter, to loosen and remove the membranous exudation, to prevent the disintegration of the blood, to disinfect and cleanse the diseased parts, to support the patient and to secure ample ventilation and the utmost cleanliness. The treatment of a mild case consists in regulating the secretions, the use of an antiseptic mouth wash, such as a weak solution of carbolic acid, bichloride of mercury, boracic acid or the chloride of sodium and an occasional touching the points of exudation with some stimulating antiseptic, (not an escharotic). The following has served my purpose well:

Recipe:—Acidi carbolici, gtt. x; tinct. iodini, tinct. ferri persulphatis aa, gtt. xx; glycerini qs ad 1 oz. M—Sig.: Apply daily. For the relief of the inflammation surrounding the exudation astringent gargles are used, and frequent swallowing of lumps of ice. Pepsin, lactic acid, trypsin, papoyatin are used for solvents of the membrane and as the membrane loosens or comes away the parts should be thoroughly disinfected with a solution of carbolic acid or mercurial chloride and this is best done by an atomizer. The general treatment will be best directed by keeping the patient quiet in bed, ordering a nutritious and easily digested fluid diet. To improve the condition of the blood, iron with a bitter tonic is given; to destroy or stay the destructive effect of the poisonous tox albumins the bichloride or mild chloride of mercury is given in small and frequently repeated doses. Later on, the muriated tincture of iron with muriatic acid and chlorate of potash is substituted for the mercuric. At the

first indication of increasing weakness the alcoholic stimulants are given; the best of these is good whisky—the wines are not active enough. The whisky must be given in large and frequent doses. Where the prostration is very great, French brandy should be substituted for whisky.

If the disease extends into the larynx and the stenosis is such as to threaten suffocation, tracheotomy is the only remedy that offers any hope. The operation is indicated by the persistent obstruction of the larynx. The operation will fail of success if the exudation has already extended into the bronchi, or the system is overwhelmed by the infection, and incipient paralysis of the heart exists. The result of tracheotomy in this condition is not very encouraging, but it is a forlorn hope and should be done.

DR. JENKS, Keokuk, Iowa—The majority of the profession agree with the doctor in believing that diphtheria is a disease which is primarily local. In a majority of cases the germ finds lodgment in suitable soil in the tonsil; from there it excites inflammation and probably the toxalbumin is absorbed. I wish to emphasize the importance of local treatment. The first thing I do when called to a case of diphtheria is to make an application of Smith's solution of persulphate of iron and carbolic acid; I frequently make the solution of pure persulphate of iron. I make the application with a piece of absorbent cotton, saturating the cotton in the solution, then pressing it firmly on one side, then on the other, touching the membrane firmly. I have used a great many other preparations but I prefer this. It coagulates the albuminous exudate and if applied early it contracts the dilated and enlarged blood vessels and in that way prevents absorption. If this application is made early, little constitutional treatment is needed. This application should be repeated two or three times a day or more. The constitutional treatment should be, calomel given freely for a day or two, then the tincture of chloride of iron, and if you choose the chloride of potash; in mild cases, give liquid diet, keep patient in bed. Give plenty of whisky towards the close of the disease if there is evidence of asthenia, or the disease invades the larynx.

AN INSTRUMENT FOR APPLYING MEDICAMENTS TO THE URETHRAL, UTERINE AND RECTAL CANALS.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY A. B. KIRKPATRICK, M.D.
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In October, 1891, I showed this instrument to the Philadelphia County Medical Society, and read a brief paper on the subject. But the applicator has been so much improved and has been used so successfully since then that I think the subject merits further consideration.

The applicator is made in different sizes, the largest eight inches long with a caliber of half an inch, and the smallest of the same length and caliber of one-eighth of an inch. The medium sized one, three-sixteenths of an inch in diameter is best for general use. The tube is made straight or slightly curved at the distal extremity. It is composed of a seamless aluminium, silver or hard rubber tube. On the upper end of the tube is screwed a collar, on each side of which is fastened a ring for the first and second fingers. There is a steel rod or piston, on the upper end of which is a ring for the thumb, and just below it is a spiral spring which withdraws the aluminium tip which screws on the other end of the piston rod. This tip which is two inches long, is for the absorbent cotton when the instrument is used for liquid applications. When used for powder this tip is unscrewed and replaced by an aluminium plunger one-half of an inch long, which fits the tube accurately.

The parts of the applicator which come in contact with the liquid or powders being made of aluminium or vulcanized rubber, are not oxidized or corroded. It is so simple in construction that it is easily cleaned and kept aseptic, and is very light yet strong, and it cannot get out of order. It is very easily manipulated with one hand.

The instrument was designed primarily for the introduction of a slightly compressed pencil of powder into the uterine cervix, in the treatment of endocervicitis, endometritis, etc. Almost any power can be used, such as iodoform, iodol, aristol, boric acid, salol, sulphate of zinc or tannic acid, or a combination of them with sedatives such as cocaine, morphine, atropine, etc.

In using aristol, salol, iodoform, iodol, or sulphate of zinc, I have found it best to use an equal quantity of powdered boric acid; otherwise, they pack too solidly in the applicator and are rather hard to push out and not so readily soluble. The different powders or combinations should be in screw top bottles, about an inch in diameter and two or three inches long, and the powder should be moderately loose in the bottles, so that it will not pack too firmly in the tube.

To fill the applicator, remove the piston and press the tube down into the powder several times according to the length of the pencil desired. It can be made from one to four inches long.

After filling the instrument, before introducing it I cover the end with carbolized cosmoline, or round it out with a small piece of cocoa butter, and dip it in a solution of iodoform or aristol in liquid albolene.

If the tube is passed into the cervix half an inch to an inch, and supported while the pencil is forced gently out it will follow the canal, even to the fundus of the uterus. Several pencils can be thus introduced in rapid succession, if desired.

In introducing powders into the male urethra, the instrument should be passed in in the same way as a catheter or steel bougie, and even the straight instrument will pass nearly to the prostatic portion of the urethra. If the prostatic portion of the urethra is to be medicated support the instrument in that position, and press the pencil gently out and it will follow the urethra. If the part of the urethra anterior to the prostatic portion, is to be medicated, gently withdraw the instrument while pushing out the pencil. It is well to force a piece of absorbent cotton through the tube before sterilizing, to cleanse it and make the piston work freely.

When used as a liquid applicator, the plunger is replaced by the roughened tip on which is wrapped the absorbent cotton. This is dipped into a solution of nitrate of silver, iodin, carbolic acid or peroxide of hydrogen, and then passed into the tube and the end filled with a little piece of cocoa butter and oil. Filling the end with cocoa butter prevents any of the solution from passing out before the part intended to be medicated is reached and protects the

healthy urethra, and also facilitates its introduction.

I do not use the liquid applicator for uterine applications as it has no particular advantage over the ordinary aluminium applicator if the speculum is used. Though, if one is dextrous, and it is necessary, the application can be made easily without a speculum in the same way as a catheter or sound is introduced without inspection.

In my experience the amount of iodin or other liquid that can be passed into the uterine cavity on a cotton wrapped applicator is so small, unless the cervix has recently been dilated, as to be useless. I get much more satisfactory results when introduced with a syringe. Nitrate of silver can be dissolved and deposited on the aluminium tip, and introduced into the male urethra after the manner of Lallemand's *porte caustique;* though I have never done so; for I have been satisfied with the use of a compressed pencil of powder.

Those who have used suppositories, medicated gelatin or cocoa butter, intra-uterine pencils, urethral and prostatic bougies and fistula crayons will appreciate this instrument, as it can be used more successfully whenever these or suppositories are required.

The result of my experience is that the excipient in suppositories and medicated bougies defeats the object aimed at, in that it coats the mucous membrane and prevents the absorption of the medicament, is soon liquified and is drained away from the location where placed and needed. The cocoa butter passes out and carries the medicine with it and they are deposited on the patient's clothing, which is soiled and stained.

Suppositories and bougies are expensive, are hard to keep and carry, and disagreeable to use in hot weather; moreover, they are not always at hand when most needed.

With this instrument and three or four bottles of different combinations of powders—antiseptic, sedative and astringent, an application can be made in a moment without touching the medicine or soiling the fingers. No skill is required to fill the applicator. The expense is normal, being only the first cost of the powders.

The pencil of powder dissolves slowly, liquifying and passing through the tenacious mucus, producing the full, continuous, medicinal effect on the part.

A pencil placed in the male urethra after urination, and before going to bed, will be nearly dissolved next morning, and what little remains will be carried out at the first urination. The larger sized pencil, composed of equal parts by weight of iodoform or iodol and boric acid, and moderately compressed, will require at least twenty-four hours to be completely dissolved in the uterine canal. A continuous medication can thus be maintained by one application daily. I have found it very beneficial in endocervicitis, endometritis and subinvolution; also in inflammatory and irritable conditions of the male and female urethra.

In most of the severe cases of menorrhagia and metrorrhagia that I have treated within the past year, I have first dilated the cervix and curetted and then made applications of powder. These cases have recovered promptly and permanently—much more promptly than when I have made liquid applications or used none.

With our present knowledge of bacteriology and antisepsis it does not seem rational to attempt to medicate six or eight inches of the urethra and destroy the gonococcus by giving sandal, cubebs and copaiba or even salol by the mouth. The medicament is so changed and diluted by the time it reaches the urethra, the antiseptic and even sedative effects are so infinitesimal that they do not compensate for the disgust for medicine and disordered digestion which usually results.

Treatment by injection is more reasonable, but the effects are very transient, and likely to irritate the urethra if strong enough to be of any benefit. Their use must be intrusted to the patient, which is not only a pecuniary loss to the physician, but often a misfortune to the patient, as he gets his prescription and syringe and then thinks he can finish his case himself, thus losing the necessary subsequent care and advice of the physician.

The usual result of such treatment is a protracted case of gleet and one or more strictures. I think it may be safely said that 90 per cent. of the cases of gonorrhœa are treated by druggists or their clerks; the patient, if he has not had personal experience, goes to some friend who has had for "points," and if then in doubt goes to the nearest apothecary, who gives him medicines which he renews regularly for weeks and months. This increases the druggist's profits, but the physician gets only a fee for the first consultation, often not even that.

With the use of the applicator, an acute attack of gonorrhœa can be permanently cured in from six to twelve treatments. The physician then gets his fee, and the patient realizes that he is getting scientific treatment that neither himself or the apothecary can safely employ.

I have found the daily application of a pencil of powder of iodoform and boric acid with cocaine and atropine a specific in gonorrhœa and gleet, the cases all recovering permanently in from one to three weeks, and without the usual tendency to stricture. The pencil of powder allays irritation, keeps the urethra patulous, and promotes healing without the usual tendency to contraction.

In acute cases of gonorrhea, if the urethra is very sensitive I inject half a drachm to a drachm of a 5 per cent. solution of cocaine, which is passed back past the ulcerated part of the urethra and retained for a few minutes by compressing the meatus. The application is then absolutely painless, and by the time the effect of the cocaine has passed off the urethra has become accustomed to the powder so that it gives no pain or irritation. The powder should be placed in the urethra at the seat of ulceration or irritation. This is usually determined by a bulbous bougie.

The best results in gonorrhea have resulted from the use of a powder composed of equal parts by weight, of iodoform and boric acid. Rarely has it been necessary to add a local anæsthetic to the powder when the injection of cocaine is used before. The effect of the iodoform has been sufficient to overcome the pain and irritation. The odor of the iodoform is the only objection to its use, but this can be largely obviated if care is used in the application, and if the patient is careful in changing the dressings. After the application the foreskin is retracted and a piece of borated cotton is placed over the meatus. This will be retained usually by the prepuce, and the patient can replace it when soiled after urination. To still further protect the patient's clothing,

it is well to wrap a piece of lint or lintine over the end of the organ and retain it with a suspensory or rubber band placed over the lint not too tightly.

In most of my cases I use no internal treatment. Should the urine be very acid causing ardor urinæ, it should be rendered neutral by the use of citrate or acetate of potash. If there is a tendency to chordee I have found minute doses of hyoscine hydrobromate very useful. But there has been little trouble from this symptom after beginning the local treatment. The best time to treat a gonorrhœa patient is just before going to bed, and applications should be made every night if possible. I will report a few cases to show the length of time, number of treatments, etc.:

Case 1.—J. S., aged 22, waiter; first attack began three weeks before; characteristic gonorrheal discharge; had used cubebs, copaiba, etc., internally, and nitrate of silver injections for two weeks without any benefit. He received eight treatments in fourteen days. After five treatments the discharge ceased, and at the end of fourteen days I passed a No. 30 French scale, bulbous bougie, without pain and there was no evidence of a stricture. The bougie was passed again in two weeks with the same result. There has been no return of symptoms since treatment five months ago.

Case 2.—C. C., aged 32; special officer; attack began six months before; had had skillful treatment internally, with injections, and finally by steel bougies passed every other day for three weeks. He had improved at different times, the discharge becoming gleety and nearly ceasing; but it had each time returned, resuming the purulent character. There was a slight stricture one inch from meatus, and a tighter one five inches below through which it was difficult to pass a No. 12 French bulbous bougie. These were dilated under cocaine anæsthesia. He received fifteen treatments in thirty days, at the end of which time he was discharged. Twice in the following month, a No. 32 French bougie was passed without any evidence of stricture or local irritation. He has remained well up to this date, four months after treatment. In this case the patient was not able to get the benefit of rest in bed after treatment, as he went on duty directly after each application.

Case 3.—C. L., aged 24; wholesale druggist; had an attack of gonorrhœa one year ago followed by orchitis and stricture, which I had treated by this method. I was consulted first for the orchitis. He was under treatment four weeks, but I am unable to give the number of treatments. In the present attack treatment was begun during the first week and he was discharged cured after ten daily treatments.

I could multiply these cases by the dozen from a large dispensary practice, as well as from my private case book; but it would be needless waste of valuable time.

In this treatment I have had no toxic effect, nor disagreeable symptoms from the use of iodoform or cocaine, though I have used both freely in hundreds of cases. I feel confident, if surgeons would thoroughly investigate this mode of treating gonorrhœa and apply it carefully and aseptically, that very satisfactory results will follow. I have had the same favorable results after dilating the male urethra with the Otis urethrotome for old strictures.

The irritable condition of the urethra and bladder arising from enlarged prostate is readily relieved by this form of medication, as are also prostatorrhea and spermatorrhea, if supplemented with the necessary moral and constitutional treatment. There has been apparent reduction in the size of the gland. When, for any reason, it is undesirable or impracticable to treat sinuses or fistulas, either rectal or strumous, by incision, if they have an external opening they can be treated successfully by the powder applicator. The formation of pus can be checked and healing facilitated, and a continuous medicinal effect secured; while with injections of peroxide of hydrogen or solutions of iodoform in oil the effect is only transient. I use the injection of peroxide of hydrogen first to destroy the pus and cleanse the cavity, and then pack with powder. I have had uniformly good results unless the sinuses are very small and tortuous.

I hope to see this method of treatment thoroughly tested by older, more experienced surgeons, and trust they will report their results.

1745 N. 15th St., Philadelphia.

APPENDICITIS: WHAT IT IS AND WHAT IT IS NOT—FROM A SURGICAL STANDPOINT.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

BY JOSEPH HOFFMAN, M.D.
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Among many with the fear of surgery before their eyes, there is a widespread and possibly a growing opinion that the advanced surgeon of to-day rushes upon every so-called case of appendicitis knife in hand, something after the manner in which our English friends fearfully dread the wild onslaught of the murderous Comanche in Chicago. To the surgeon holding in his mind the dangers and complexities of all serious abdominal work, most of all that in which the integrity of the vital organs is involved, the eagerness with which this operation is supposed to be sought is amusing. With those to whom the abdomen is as yet a fairyland of surgery, where reputation may be speedily got, and mistakes hastily veiled in the coroner's office by death from heart failure and exhaustion, the fair field is enticing. But woe to the untrained explorer who anchors his tray beside the siren, "Appendix," floating dreamily in a puddle of pus. The electricians are happier than he, and rather to be desired. With a view of insisting rather that surgery and surgeons shall not be held responsible for every vagary of the imagination by which operation is justified, whether cause exist or not, some of the determinate conditions and considerations belonging to the operation are here briefly presented. First of all, the anatomical relations of the appendix must be considered as settled finally within the peritoneum and therefore any inflammation of the organ is necessarily within the penitoneum; and inflammation outside the peritoneum, associated with the appendix, is the result of extension of the disease from within, outward. Advancing along in the anatomical conception of the disease, we must remember that no matter what the cause of irritation or inflammation in the organ, we must not expect a common symptomatology or a fixed locality by which the disease is infallibly to be recognized or located. This opinion, in view of the somewhat general belief in the McBurney point, must be explained anatomically. In another paper I have

referred to the anatomy of the cæcum as insisted upon by Rokitansky, and a careful attention to a few points, *seriatim*, must convince the most skeptical, that although in a few cases the point of greatest pain in appendicitis may be constant, still there is no anatomical ground for this, and the cause is found rather in pathological adhesions in a given line than for any other reason. The cæcum hangs more or less free in the abdomen, and has therefore considerable latitude of motion. There is first, rotation upon its own axis; second, rotation upon the mesentery as an axis; and third, upon another intestine as an axis. By rotation upon its long axis, the cæcum may become so twisted that the ileum opens on the right side, but when revolving on its short axis the appendix may be placed toward the anterior abdominal wall, or it may be placed at the posterior aspect of the intestine. It will be evident that when these motions are concomitant there will be a resultant of motion and that the location of the appendix must vary according to the movement of the cæcum. So far as the mesentery of the appendix is concerned, there is frequently a pouch between it and the ileum consisting of folds of peritoneum; by rotation of the cæcum this mesentery becomes either congested or atrophied and is thrown into a band or perforated, in either way becoming a source of danger to the near-lying intestine, for it may either choke it off as by a cord or ensnare it through the perforation, choking it in true hernial fashion.

If we consider these anatomical relations for a moment, it will be evident, first, purely that a physiological motion may result in a dangerous pathological condition, and secondly, that this physiological twisting or revolution approximating it may provoke a symptomatology most misleading, and therefore dangerous so far as it apparently justifies extreme measures. It will also explain how in many cases in which the symptomatology has been presumably grave, the trouble has suddenly subsided and may never again return, for the reason that there has been in reality no real appendicitis by occlusion, retention or secretion, but only a physiological twist and corresponding irritation which has righted itself. So far for apparent disease of the appendix; now let us look at the real disease, so far as exact location is concerned. It is the universally conceded fact, that in operation for appendicitis, the appendix is not always readily discovered. Some operators fail to discover it at all. Why this should be so, when it is alone the seat of the disease, I do not understand. Why on opening the abdomen it is not always found in the same position is easily explained by the anatomy just referred to. The position must vary with the motion of the intestines with their degree of distension, again by the accidental adhesions of the organ and the adjacent structures, and again by the length of the orgain itself. It has been found in the inguinal canal, now up against the anterior abdominal wall, and again in the floor of the pelvis. In women it is no rare thing to find it mixed up with an ovarian cyst, and it may, by extension of inflammation, cause a perforation of the diaphragm. All the facts being considered, it is fallacy to argue that lesions of the organ must have a mathematical constancy, either of kind or degree, or of situation. There must be variation in all them, according to anatomical peculiarities of the parts, and according to the nature and extent of the adhesions and the duration of the disease. These arguments and facts I consider are sufficient finally to dispose of the real value of the McBurney point, although this has had its justification in the brilliant results of the surgeon whose name it bears, and whose insistance upon the legitimacy and true *rationalé* of the operation for the disease under consideration has done so much to give it permanency in the advanced surgery of to-day.

What must be considered operative cases of appendicitis outside the presence of abscess, must perhaps for a long time remain an open question. Pus, the advanced surgeon, no matter where its location, considers a legitimate cause for attack, and when once when this condition is present, delay is no longer to be considered. As to the diagnosis of pus, the question of duration of the disease and the accompanying symptomatology of pain and tenderness is always to be considered. The temperature is not necessarily high, is often sub-normal, and if there has been rupture, shock will usually have been present according to the degree of pus-invasion and occupation. If limitation by adhesions has occurred, the patient will rally and further delay will diminish chances of recovery. The point of greatest sensitiveness connot be regular, and is in most instances traceable more to the discomfort produced by the stretching of adhesions, than to the inflammation in the appendix. If the omentum has become adherent at any point, tension, movement of coughing, turning, or any movement whatever, must be more or less painful. In the real presence of pus, if the inflammation is near the anterior plane of the belly, the walls over the seat of the inflammation are apt to be infiltrated and boggy. If, however, the appendix is deep seated in the pelvis, this bogginess, while not discoverable anteriorly, will be discovered by examination per rectum. For this reason, examination by the bowel, which is often left until the last, should be one of the first procedures to establish the diagnosis. If the tumor is above the iliac bone, or near lying to them, percussion may be dull; if however the disease is deep seated, there may be tympany, owing to overlying intestine. In arriving at a diagnosis, the moderate and careful use of salines or of calomel is of more than a little use. If the inflammation is only congestive, or is mechanical, the emptying of the loaded bowel will relieve pressure, and thereby permit a general resolution with the abatement of all the symptoms. Moreover, if the tumor is fecal, this is removed and a diagnosis rendered possible if other mass remain. The use of the spirating needle is precarious in the extreme, and is not to be advised. Pus may be so deep seated as to eecape detection, and on the other hand so situated that perforation of the sac containing it be a most dangerous step. Again, if the condition of the patient is such as to justify exploration of this nature, incision is no more dangerous and much to be preferred, as at once making a diagnosis, and affording a means for relief. In long-standing cases, motion of the right leg is accompanied by pain, and the thigh is constantly flexed, while its complete extension is either impossible or accompanied with great pain. With the mind directed to the operative feature of the disease, careful observation along all the phases of the attack will generally enable a distinction to be made between cases essentially abscess-like from the start and those of a less degree of

inflammation. Among the latter that claim the attention of the surgeon are those recurrent in their type. Given a case recurring at various intervals, each recurrence marked by an increase in the seriousness of the symptoms, to the surgeon holding in mind the probabilities of the case, operation will be usually certain of selection. Every patient holding within his abdomen sufficient cause for periodic attacks of this nature, is never free from danger of a last fatal attack. In these instances the operation during the quiescency of the disease is to be considered. To my mind the argument of Senn for operation after a primary attack of appendicitis, granting that the nature of the disease is well established is logical, and the practice in good hands safe.

In the minds of many, the non-surgical treatment of appendicitis has by far the best of the argument. Case after case is cited in which recovery has taken place under the use of opium, and therefore, in the minds of those who pin their faith on the claims of Alonzo Clarke, surgery has little, if any excuse in appendicitis, if it be remembered that pain and tympany, and rise in temperature, may all exist in the right iliac fossa without the existence of appendicitis at all. Hence if a localized peritonitis, produced by the twisting or revolution of the intestines is present, opium will relieve the pain and consequently, as the gut is also thereby put at rest, in the interim it will have regained itself and the symptoms will abate.

The same logic follows the calomel or saline treatment.

If the gut is slightly twisted and congested, if it be freed from its contents and therefore given a greater possibility of physiological contractions, the normal integrity and relations are at once restored and the pain is at once relieved. Even in the presence of pus the relief of the congestion, brought about by the use of salines often conduces to the greatest comfort of the patient and gives a relief that seemingly interdicts operation. The same is true in tubal and ovarian pus disease in women.

It will thus be seen that the two methods of treatment in the non-suppurative forms of inflammation both accomplish the same thing in essentially the same manner.

NOTE:—DR. MUSSER of Philadelphia, was placed on the program for a paper on appendicitis, in the Section on Practice of Medicine, but was not present. The gentlemen who had promised to take part in the discussion were present, and the discussion was proceeded with. By consent of the secretary of the Section it is inserted with the discussion on the same subject held in surgical Section.—EDITOR JOURNAL.

DR. WHITTAKER in opening the discussion said:—So much depends upon what is meant by appendicitis. I do not like the term. I prefer the term typhlitis, and include under it all the cases of peri- and paratyphlitis, whereby I would make a distinction between inflammations which affect the cæcum, and peritonitis from other cause, as from typhoid fever, dysentery, tuberculosis, or affections in connection with the uterus and fallopian tubes. We would be better satisfied with the surgeons in their dicta if they made more of a study of etiology. They say, Cut in every case. The knife is in the air. We say, Let us first have a diagnosis. A great many of these cases depend upon tuberculosis. There is really no difference of opinion in a case in which suppuration has occurred, or where any real infection exists, and cases of so-called appendicitis are nearly all infectious processes. They are not due to mechanical irritation as from foreign bodies, enteroliths, etc. These things are found, it is true, but only exceptionally, and then as effects or accidents and not as causes. Every physician has seen cases of individuals who have suffered an attack of typhlitis once and never again. Every physician also has seen cases where the surgeon has cut down upon the cæcum and found nothing. Therefore we may put up the knife, at least until we have studied the character of the case.

DR. HOFFMAN, Philadelphia—The diagnosis of appendicitis is not always easy, notwithstanding that physicians claim that it is, whether the case is operative or not. Even cases which are apparently operative sometimes get well without operation, as do cases which are apparently very simple. The last speaker has given to the disease the name which he prefers, typhlitis, and consequently the diseases he will meet will be typhlitis and not appendicitis. Unfortunately for this theorizing it has been proven by observations in about 18,000 cases in the German hospitals that 91 per cent. of all the cases so recognized had absolutely positive disease in the appendix, so that if you choose the name of typhlitis you must choose it for 9 per cent. of 18,000 cases. In discussing this subject please remember that all surgeons do not operate upon every case of appendicitis; that is an unfair stand to attribute to us, any more than we would operate for pain without a diagnosis anywhere else. What we wish to insist upon is that a distinction must be made between typhlitis if it exists, which is very rare, and simple impaction and inflammation in the region of the cæcum and appendix. We must remember that the appendix has a mesentery of its own, that the cæcum has a rotation of its own, that these rotations take place separately, that they will produce twists in the peritoneum of this region and start up an inflammation which is simply the inflammation of congestion and not disease in the bowel. These are the inflammations which may give pain, which may give tympany, which may give a rising temperature. You know that simple colic may give a rising temperature, a simple twist of the intestine may give rise to pain and in most cases it passes away, but these are the cases which the physician will indiscriminately call appendicitis or typhlitis; these are the cases that get well with opium, and much more satisfactorily with calomel or salines, because they will clean the bowel out and restore its integrity. Such cases ought never to be called appendicitis. In regard to the treatment, or reasons for treatment of appendicitis, it is quite possible for a case to get well without any treatment at all. We all know that simple pleurisies get well without treatment; we know that cases of empyema get well without treatment; but there is no physician who has the interests of his patient at heart who will refuse to tap a pleurisy as soon as he finds it, and not wait for it to be absorbed, and certainly none of us in the presence of empyema would wait for the patient to spit it up. In these cases we must hold that primarily there is an obstruction or impaction in the appendix which may accidentally get well, just as a bullet may become encysted and the wound heal. But if we know that there is a bullet in the abdomen, likely to cause a disturbance, fever and the like, we will try and get it out. We know that these abscesses do burst spontaneously; I have known one man to expectorate the contents of one of these abscesses, another to pass it through the groin, and they got well. The gentleman who preceded me said the origin of the appendix was inconstant; I beg to differ with him. The difference of its location depends not on the anatomical inconstancy of the appendix but upon the revolution and the motion of the bowel, hence there is no use in attempting to locate the appendix by an

absolute mathematical point. For instance, the cæcum revolves upon the mesentery; that will bring the appendix into one position; it revolves upon the intestine, which will bring it in another position. You may find the appendix on the anterior abdominal wall and the posterior abdominal wall, in the pelvis, on the diaphragm or in the inguinal canal, so that to look for the appendix always in the same place is to look for something you are not going to find. In reference to the treatment, a simple case without pus or inflammation will get well of itself, but if we use opium it gives the patient a rest and the bowel a chance; if we use salines it cleans out the bowel and gives it a better chance. If there is inflammatory disease in the appendix, impaction of the cæcum or anything of that sort, if there is a lesion there which is likely to make trouble let us stir it up by the use of a saline; if there is simple inflammation we will get rid of the trouble and not kill the patient.

DR. MCLEAN, Detroit, Mich.—Appendicitis is one of the large class of diseases which from time immemorial have been classed on the medical side of pathology, and so long as it remained there it was not a very favorable subject for the practitioner to meet. Since it has been transferred to the department of surgery to a great extent, an entirely different aspect has been put upon this disease. In former times, as you all know, a case of appendicitis was diagnosed simply as peritonitis and the peritoneal cavity was regarded as an unapproachable region, and these cases were simply allowed to die; the general practitioner's duty being neither more nor less than to relieve pain and smooth the way down to the grave. Now we take a different course; we open the cavity and operate. It is a very grave question how the physician regards his duty in the matter. The title of Dr. Musser's paper suggests an opening for me. It is "An Extraordinary Case of Appendicitis." I have had some fifteen cases in my own practice in the last few months—some operated upon and some treated without operation and almost all got well. A peculiar case came within my observation a short time ago: I was called across the river into Ontario to see a man who was said to be in a very hopeless condition and I was asked to go for the satisfaction of the family only, as it was not supposed anything could be done for him. When I got to the house before I entered the door I smelled the odor of his breath and expectoration, and it was very difficult to breathe in the house. The poor fellow sat there propped in a chair and struggling for breath and expectorating continually the most fetid pus I have ever smelled. On examination and inquiry into the history I was surprised when the doctor stated to me, This is a case of appendicitis. I learned from the testimony of the patient and his friends that it commenced with a painful hard swelling in the region we would expect from appendicitis and had gone to such an extent that the doctor was for having an operation, when suddenly it disappeared and this difficult breathing came on. On examination I found the right lung dull as high as the fourth rib, perfectly dull, very little respiratory murmur anywhere; what there was was tubular and you could hear loud râles produced by this fluid which was secreted. I was surprised at the diagnosis and surprised at the history and I saw plainly it was impossible to do anything for the patient. I had him transferred to the Harper Hospital in Detroit and the day after his arrival I made an opening between the eighth and ninth rib. First of all, I introduced an aspirating needle of large size and through that there flowed pus of the same character as he expectorated. I made a free opening so I could introduce my finger between the two ribs and hold it there until a quart of this stuff had passed away. I introduced a nozzle of a douche and washed the cavity out, put in a large drainage tube, washed out two or three times and in ten days the man left the hospital and shortly afterwards I heard he was going about his usual vocations. I state simply the facts and leave you to judge for yourselves whether it was or was not a case of appendicitis, but if it was, it was certainly very remarkable indeed and it serves to illustrate the fact that it is very difficult to predict in what direction a typhilitic abscess may open.

DR. MCMURTRY, Louisville, Ky.—There are two matters very important for us to grasp thoroughly in regard to appendicitis before we can reach common ground between physicians and surgeons. I believe that general practitioners who do not pay special attention to abdominal surgery rarely realize how common a disease appendicitis is. If you will examine the mortality tables reported by the health officer of any city as large as Milwaukee, you will find a number of deaths from peritonitis recorded. Peritonitis is not a disease; it is the result of a disease process, and the majority of these cases are appendicitis. Take any city in the Union of over 100,000 inhabitants and I undertake to say that there will not be two consecutive weeks in the year that there will be in the mortality table reported by the health officer less than from one to ten cases of peritonitis, and in the male nine out of ten of these cases are appendicitis. In the majority they are unrecognized in life,—they are treated as idiopathic peritonitis; but such a disease does not exist.

Dr. Whittaker's allusion to the pathology of this disease is unnecessarily complicated. We have learned more of the pathology of intraperitoneal diseases by opening the abdomen in life, than ever could be learned by opening *post-mortem*. The expressions, perityphlitis, peratyphlitis and typhlitis ought to be eliminated entirely for the sake of scientific accuracy and precision from all inflammations in the iliac fossa. Perityphlitis and peratyphilis, meaning peritonitis and cellulitis around the appendix and around the cæcum are not diseases—they are the secondary results of appendicitis; and so with the term typhlitis, which is applied to all the inflammations which originate in the appendix. I want to reiterate what has just been said, that surgeons do not advocate indiscriminate operations upon appendicitis.

In regard to the cases where the expectant treatment results in so-called cure, that is one of the greatest fallacies of statistics. Suppose a traveling man is sick with appendicitis in Milwaukee to-day and fights the attack and gets well—the doctor who attends him in Milwaukee records it as a case of recovery by expectancy. This man has another attack in Detroit, two weeks afterwards and the doctor who attends him there records it as a recovery. He has a third attack in Omaha three months later, and again it is put down as a recovery; so one patient, who will ultimately be operated upon by some surgeon, may be three times recorded as a recovery by the expectancy treatment.

DR. JOSEPH PRICE, Philadelphia—This is a subject that has given us in gynecological surgery the most anxiety and embarrassment and the most deaths. At one time it was looked upon as belonging purely to the practitioner; now we feel that it belongs to the surgeon and to no one else; our position is just this—it matters not by whom the patient is first seen, when he is suffering from appendicitis he should be turned over to the surgeon; or the second visit should be made *with* the surgeon before treatment of any kind with opium and poultices; everything else should be withheld until diagnosis is made, before symptoms of a very serious disease that kills many are obscured or masked. I shall discuss the subject very briefly and in conclusion refer to the case Dr. McLean has cited and the one I imagine Dr. Musser intended to report. I have discussed this subject with surgeons and practitioners in many States, and have

had hundreds of cases carefully cited. Dr. Whitney, a justly celebrated surgeon of the Northwest, has had fifteen consecutive sections for appendicitis with one death, seeing them early and late. I think Dr. McLean has had some fifteen consecutive sections without a death, a wonderful showing. My brother has done fifteen consecutive sections in Pennsylvania and New Jersey in a very short period, taking them as they come; some far gone, some very recent and they all recovered. While doing these fifteen sections for appendicitis he has twice stepped from the train only to be told by the physician, "Doctor, you are too late; my patient is dead." The mortality has been higher between the receipt of the telegram requesting him to come at once by the first train, and the visit of the surgeon, than after operation. I allude to this only to indicate the importance of an early diagnosis. Now, understand, we are talking about appendicitis; please do not mix it up with anything else, with chronic constipation, or impacted feces about the head of the cæcum. Patients suffer from pain or trouble that simulates appendicitis very decidedly with a loaded and impacted head of the cæcum. From the medical aspect of the trouble you can make no such showing. The mortality at present is very low following the interval of the first, second, third or twelfth attack; the removal of the appendix in that interval is at present practiced with about a nil mortality. In my own work I have not lost a case; I have removed from seven to nine following the third, fourth, seventh and sixteenth attack without a loss. Dr. Musser's case is one in point; this young lady, aged 17 or 18, had a first attack at 11; she had a serious attack last summer and some physician urged its removal; she returned to Philadelphia to one of our brightest clinicians, but he was not willing to urge this woman into a section without exercising his own judgment in the matter. He put her to bed, giving her the benefit of the rest treatment and in the midst of it she had another attack of appendicitis and came near perishing, and he asked me to see her. Three of these attacks occurred about the menstrual period and he feared dysmenorrhœa; he telegraphed me on the morning of the operation to wait and he would curette and see if there was any trouble in the uterus; to this I did not answer, but went. She was placed on the table for section; it was not an exploration. Let me say I am not in the habit of covering up ignorance by exploration. If I do not make a diagnosis I do not touch the patient. I had all confidence in the diagnosis; three or four physicians had seen this young woman and I knew there was trouble about the head of the cæcum. There was not a shred of adhesion, the appendix lying in the pelvis like a little sausage three and a half inches long and three-fourths of an inch in diameter, It had simply been a retention sac without rupture. I transfixed it and tied it away, took a needle and turned the stump into the cæcum and stitched over it. She made a beautiful recovery without unfavorable symptoms.

Dr. McLean has invited our attention to a diagnosis made by a provincial surgeon or physician. We know these men are educated physicians, as a rule, and they are keen diagnosticians. I am satisfied that the physician who called Dr. McLean was correct in his diagnosis. I will simply call attention to one case to verify my statement: Dr. Kellogg of New Jersey, an excellent physician of varied experience and good judgment, a few years ago asked Dr. Da Costa to see a patient who was suffering with appendicitis. Dr. Da Costa agreed with the diagnosis. A short time after this consultation a second took place. Again it was appendicitis. A few weeks later they agreed to treat this boy with poultices and a few weeks later he discharged the products of this appendicitis through the esophagus and got well.

It is of paramount importance that physicians and surgeons should understand each other on this subject; that we should decide now and forever whether it belongs to practitioners or to the surgeon. Assuredly it is a surgical disease, and it should early and always go into the hands of the surgeon; the physician should cease to cover a suppurating appendix with poultices and treat the patient with powders until it is too late. We have attempted many times to save these patients, reasoning that we should give the patient one lingering chance for his life; this gives surgery a black eye. I am in the habit of asking the physician how long the patient has been sick. He answers, Two weeks. I ask, Is the patient dying? If he says yes, that settles it; it is folly to operate on a dying patient. At the same time it is our duty to give the patient this one chance for his life. In alluding to Musser's patient, I will say we nearly always find adhesions both omental and intestinal. It is important to consider the character of the operation with a huge tumor in a chronic case of appendicitis and in neglected cases. In the neglected cases the lateral incision with resection and drainage will save about all of them, but if there is obstruction with six to sixteen inches of ileum coiled up and fixed with adhesions and obstruction of the bowel it won't answer, and I am satisfied that some are lost by not considering that point. In that class of cases the central incision will answer best. You can deal with extensive adhesions and complications by that incision better than by the lateral and you will do very much less mischief in freeing these extensive bowel adhesions, and it will have to be followed by thorough toilet and well placed drainage. This appeal is simply made in the interest of patients and not in the interest of surgeons and gynecologists.

Dr. Hobart A. Hare, Philadelphia—It is not every one who is situated in a city where there are such successful operators as Dr. Price and his brother. I was taught by Dr. Price the value of operating early in these cases. I have found in private practice that patients object to an operation; they will say, "Doctor, can't you do something for a little while to overcome the inflammation?" In many instances such a request is dangerous, because it is a temptation to the physician to temporize; but on the other hand it must be possible to have acute inflammation in the appendix without the formation of pus. You can have inflammation in any part of the body without the formation of enough fluid pus to do any harm. A man in my ward at the St. Agnes Hospital was in bed for a number of days with acute inflammation which was diagnosed as appendicitis by several of my colleagues on the surgical and medical staff who were imbued with the idea that all such cases should be operated upon. I insisted on an operation but the patient refused for a number of days, but finally consented. When the appendix was found it was red and inflamed, but there was absolutely not a single drop of pus in it. I believe it is feasible for the physician to temporize at least so far as to modify and allay acute local inflammation. I think the surgeon should be called in at once when the physician has an idea that pus is beginning to form or is present. I think I should say to a patient: Here is a disease in the abdominal cavity and I want to call in such a man because he is an excellent surgeon, not so much for him to decide whether you should be operated upon as to get advice from him whether pus is present. If pus is present by all means it should be cut into. But I do not think we ought at the very first instant say, because there is inflammation here, go to the surgeon. I do not think opium is a good thing to use, not because of the harm it does to the intestines but because it masks the symptoms to such an extent that we have a valuable indication of pus formation taken away. The patient ought to be kept quiet, so if the surgeon is to operate you can use a rectal injection or anything to influ-

ence the inflammation locally. I do not think purgatives should be used under any circumstances prior to operation. I want to protest against the opinion that has been expressed that all cases of peritonitis in the male are due to appendicitis. I doubt if the doctor can prove that this is true. I have seen peritonitis in which the inflammation started in other portions of the abdomen. In my own case I was taken with acute enteritis involving the sigmoid flexure, and finally the entire peritoneum was involved. This was fifteen years ago; I was treated by belladonna and other things, in the hands of a skillful practitioner, and it is unnecessary to say that I recovered. So I know that it is possible for peritonitis to start in some other parts of the abdomen.

DR. C. SIHLER, Cleveland, O.—I am an ordinary doctor but a great friend of the surgeon, and I have acted upon Dr. Price's suggestion when I could, and I must say the majority of these cases have gotten well. None of them were of the trifling kind. While I believe every one is a surgical case, yet the cause is different in each; take a wound on the hand, it makes quite a difference what sort it is, whether a scratch or a foreign body; in either case we will have pain and trouble, but the outcome will be entirely different. The difficulty with me is to tell what the trouble is in these cases of appendicitis, if you like that term, and I think it is as good as the other—it shows where the trouble is just as much as does typhlitis. This is the difficulty physicians have: shall we tell every one of our patients to have the abdomen cut open, or which ones shall be cut open? I shall be very glad to hand every one of these cases over to the surgeon and have him decide, but my families say to me, "What would you do?" and I am in great trouble over it. I hope from this discussion we will be able to decide which of these cases should be operated upon and which not; it would be a great advantage in the practice of medicine.

DR. REED—I have no doubt that when Dr. McLean's interesting case was being presented it flashed upon the minds of many that this was not a case of suppurative appendicitis but possibly of empyema, simply because of the deposit and the remote point at which it was liberated. I have opened an abscess originating in suppuration of the vermiform appendix, making the opening in the popliteal space and have passed the drainage tube from the popliteal space out in Ponpart's ligament; so when we speak of these remote deposits of pus and the remote point of exit we are not taxing the credulity of those who have become familiar with this disease by actual surgical experience. Dr. Whittaker takes the surgeon to task because he records his surgical procedures and recoveries, and perhaps deaths, but fails to illustrate those interesting problems of etiology which go far towards solving the question. I believe that foreign bodies in the peritoneal cavity, pus pockets, and the frequent constriction from distortion of the appendix by virtue of the excessive rhythmic activity of the head of the colon, these constrictions coming primarily from adhesions are perhaps the most important and well demonstrated cause of this disease. I am glad to hear that physicians do not wait for patients to become saturated with pus before sending for the surgeon, and I am willing to hear testimony to the fact that such progressive physicians as Dr. Whittaker do not ask surgeons to operate on moribund patients. In my own city within the last ten days I was called upon to operate upon a patient whose abdominal wall was distended like a bass drum, who was practically moribund. When the post mortem was made the abdomen was found full of pus and there was an enormously elongated vermiform appendix. This is but one instance of almost a dozen that have come to my observation in the last two years. It is not true, therefore, that all physicians engaged in general practice recognize the importance of this difficulty and advise early operation in these cases. This discussion is calculated to bear good fruit with those gentlemen who by reason of their occupation are unfamiliar with the results obtained by the surgeon in these cases, and who stand somewhat in awe of surgical procedures which impress them as being more or less formidable. The impression has gone out that surgeons sometimes operate upon these cases and do not find inflammation but do find adhesions. Will some one kindly inform me by what means adhesions originate unless it is by previous inflammation, and whether we must not recognize in their existence a constant menace to the life and strength of the patient? Dr. Hare has formulated a rule which I think in the main is a safe one, that during the first attack surgery should not be contemplated until there is developed a distinct indication of pus. I believe with him that the rule ought to be adopted and that wherever pus symptoms exist incision should be made. There is another class of cases that should be operated upon without reference to the history of pus; that is the recurrent cases in which by the very fact of recurrence we have demonstrated the existence of adhesions which are calculated sooner or later to bring about suppuration at this point. These cases should be operated upon by ligation and during the quiescent period if possible. The idiopathic origin of peritonitis is I think a definite outline of pathology. There has been perhaps no stronger confirmation of the point the surgeons are contending for than the statistics of Dr. Fitz. He presented figures which proved conclusively that the mortality following operation was greater than that following the let-alone policy, but that was when the let-alone policy was the one preëminently followed by all practitioners of medicine. But when we have the revised statistics from Fitz they will show that these conditions are reversed, because, as has been indicated by the discussion here, the trend of practice is to the early detection of suppurating conditions, of recurrent attacks and of early operation. So that to-day surgery is making its best record, making a better record than in the past and one to be excelled only by future attainments.

DR. J. B. MURPHY of Chicago—Cases of appendicitis should be divided into 1, catarrhal, without perforation; 2, suppurative, without perforation; 3, perforative, with local peritonitis, and 4, gangrenous. It was formerly believed that there were many cases of perityphlitis without appendicitis, but I have yet to find one single case of that kind. The appendicitis will always be found primarily. In ninety-five laparotomies which I have made I have found in every one a lesion of the appendix. We can have the suppurative variety without perforation and it will be found that the peritoneum can become infected without perforation having occurred. As to the time of the operation—when to operate and when not to operate. In Germany they advocate not operating, but in my large number of cases in nearly every one I found a lesion of the appendix and pus in all but two. We have to trust to fortune for the opening of the pus into the bowel. That is nature's way—a good one if it occur, but the patient may die of general peritonitis while we are waiting. I have not seen one case of so-called idiopathic peritonitis. I have always found that it was the result of a lesion. Appendicitis is the cause of death in many of these idiopathic cases. You should operate the moment you have made your diagnosis; the earlier you operate the easier it will be to operate. When the classical symptoms are found that is all you need to wait for, and if you cut down then I believe you will find a lesion of the appendix. Make your diagnosis the first time you see your patient; then the appendix has the advantage of being easily removed, but if you wait a few days it may be very difficult to find it and remove it and then there will

be great danger of extensive infection from the accumulation of pus. Remove the appendix in every case, if you operate early; if late, it will depend upon the condition of the patient; if necessary it may be left behind and removed subsequently. Out of my ninety-five cases there were four deaths.

DR. N. SENN of Chicago—A few statements have been made here which might mislead the general practitioner. First, as regards the ease of operating in the first three or four days. I have always looked upon the removal of the appendix as a not very easy matter, even when it is in its normal condition. So I would give warning against undertaking the operation on too slight grounds. It is easy to preach such doctrines as making a diagnosis from the classical symptoms and shelling out of the appendix and cure of the patient, but it is a different matter in active practice. The tendency is in the other direction.

When the patient has had repeated attacks, there can be no question as to the propriety of operating, but I always hesitate about advocating operation in a first attack. As regards the diagnosis, while in nine cases out of ten we can rely on the classical symptoms, there are many sources of error, particularly in the female. When the operation is undertaken we should remember the difficulties attending it, in order to make adequate preparations.

DR. THOMAS of Pennsylvania—There are fashions in surgery and in other things. I am not opposed to operating when it is necessary, but we should give nature a chance—she does wonders. My experience differs from that of most men. In the past twenty years I have had on an average of from three to five cases of appendicitis every year, and not one died. I don't rise to speak against the operation dogmatically, but most cases will get well without operation, and many that have been operated upon and died would have recovered without it. The peritoneum has been entered in the search for this disease when it was not found, and the patient died.

DR. GASTON, Georgia—My experience is unique in these cases where perforation has occurred. I have had four or five cases of perforative appendicitis where collapse occurred; sometimes I operated and sometimes I was kept from it by the advice of others. If the operation can not be done in the first few hours after the escape of fecal matter, we will find a necrosed condition of the serous membrane, and then the operation is of no avail. I do not consider that McBurney's point assists the diagnosis much in the early stages. If we could fix on these cases early and operate we could probably arrest the disease.

If we allow the proper moment to pass, it is gone forever. I am against the view that we should temporize. We are on the safe side in operating when we have the indications of appendicitis.

DR. RUTH, of Iowa—It seems to me unfortunate that any of us should feel like temporizing in view of the unsatisfactory history of the treatment of appendicitis in the past and the fact that nearly all cases tend to recur. The old idea about idiopathic peritonitis should no longer be thought of. I saw one operation performed for appendicitis and no evidence of appendicitis was found, but the error was on the safe side because the danger attending the laparotomy was almost nil.

DR. LYDSTON of Chicago—It would be difficult for the general practitioner listening to this discussion to know exactly what he is to do. There is no question that could bring out more diametrically opposed opinions than have been expressed here in the discussion of this subject. We all know undoubtedly of many cases of appendicitis which got well without operation, and we also know of many that died without operation.

I think we are safe in concluding that the truth lies between the two extremes advocated. We do not so much want so many arbitrary expressions as we do careful study on the part of all, so the physician and surgeon can go along in their work hand in hand. Conservatism is a good thing but when there is no abdominal surgeon standing at one's elbow it is not the kind that is most conducive to the life of the patient. I have seen this style of conservatism calmly standing over a case of peritonitis from perforative appendicitis. There is a vast difference between that kind of appendicitis and the slow kind where there is no great tendency to the formation of pus. We should not conclude that all cases should be treated conservatively or all operated upon. I differ with Dr. Murphy as to the ease of diagnosis. Whenever you are able to diagnose appendicitis from the presence of induration, pus is already present, and conservatism is then very dangerous.

DR. SOMERS of Missouri—In lecturing on anatomy I have found it more difficult to find the appendix in the normal subject than in the pathological condition of appendicitis.

DR. HOFFMAN in closing said:—I wish to thank the gentlemen for the breadth of their discussion, the bringing out of which was the real object of my paper. I wished primarily to draw out the difference between operative and non-operative cases. He who insists that because a few cases get well spontaneously all ought to, argues from a very bad standpoint. There must always be operative and non-operative cases. Those which recur are always operative, as also are some of those that come on primarily. I wish again to refer to the point that nature does wonderful things, but I think that in a case of appendicitis she has had her chance and failed and is working backwards. I call attention to the fact that we do not apply the waiting doctrine to empyema. The logic of waiting is bad logic. In reference to Prof. Senn's remarks about the difficulty of the operation, I can say that my first one was certainly not easy. In women the condition is apt to be complicated by pelvic troubles, and the diagnosis is then not so easy. The time for the study of the case is certainly in the first twenty-four hours. The difficulty of diagnosis must depend on the mobility and length of the appendix, which it has been demonstrated varies from one to ten inches.

SUPPURATIVE APPENDICITIS.

Read at the Meeting of the Missouri State Medical Association at Sedalia, Mo., May, 1893.

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The history of the cases of appendicitis given in this paper warrants me in making a few remarks upon its pathology and diagnosis. Until recently the anatomy of these parts was not fully understood. Mr. Treves, in 1885 called attention to the fact that the cæcum itself is entirely covered with peritoneum, which after enclosing it is reflected upon the posterior wall of the abdomen, being continuous with the ascending mesocolon where this fold exists. This organ lies quite free in the abdominal cavity, allowing it to enjoy various movements owing to its structure and attachments. Rokitansky describes these as three-fold; first, rotation upon its own axis; second, upon the mesentery as an axis; and third, upon other intestines as an axis. From these movements the location of the appendix will vary even in health, and especially is this true after the results of inflammation have taken place. A knowledge of this is

important, especially in the primary operation, that the least time may be consumed and that the intestines may not be disturbed; hence, we find that its usual anatomical position of backwards, upwards and inwards is not always the position occupied by this body. As a result of repeated attacks of inflammation this organ is always displaced and its anatomical structure is so confused that the greatest care is required to locate it. Kraussold, Toft and others, show that the various diseases of the cæcum are but the sequelæ of appendicitis, and there are those who, with the evidence before them, claim that only as an exception to a general rule is any disease of this organ found, except as primarily beginning in the appendix vermiformis.

Dr. McMurtry reported a case of stercoral colitis with perforation of the cæcum before the American Medical Association in 1888, which can be classed as an exception to a general rule, and I prophesy the day will come when the terms used to express the various forms of inflammation of the cæcum will be supplanted by that which will express a true pathology of these varieties of the same disease. Only upon a true pathology can we establish a true diagnosis, the principal symptoms being a localized pain, tenderness, swelling, rigidity of the abdominal wall on the right side, and other symptoms suggestive of circumscribed peritonitis in the ileo-cæcal region. As long as the disease is limited to the appendix the swelling is not distinct, and if the appendix is located behind the cæcum it eludes detection. Constipation and vomiting are usual accompaniments which may confuse in making the differential diagnosis from intestinal obstruction. With a diagnosis fully made, what is the duty of the attending physician? With the pathology of this disease fully settled to be primarily an inflammation of the appendix, how shall it be treated? There has been so much said in discussing this subject that we all feel warranted in an operation in properly selected cases. Apropos of the former dilly dally methods of the so-called "conservatives" in medicine, "who believed in opium, poultices and funeral rites," we have two classes of counsel in regard to operation. The first is, that upon a real danger signal—persistent pain, high temperature, greater or less in duration—operation should be resorted to; they also advise mild purgatives. Of the other faith are those who counsel waiting, with the argument that in reality few cases of appendicitis result fatally and that a great majority recover under rest, poultices and opium. A third comes forward and advocates an operation between the attacks. Among this number are Drs. Senn and Treves. Dr. Senn also urges an operation before inflammatory adhesion takes place, while Dr. Treves believes in waiting until all inflammation and other symptoms have ceased. Dr. Senn dwells particularly upon the safety of such an operation; Dr. Treves says: "I have excised the appendix in a large number of cases and up to the present time have to record no death as resulting from the operation." In the light of the following cases I believe that to wait is to jeopardize the lives of our patients; that Dr. Senn's position is the correct one, to operate early before adhesion takes place, although inflammation exists, and not to wait for a recurrence as Dr. Treves would advise. Discussion has been going on as to the best method of operating upon these cases, the proper line of incision, as to whether drainage should be employed, etc. Certainly there can be no fixed rules in every case, for we rarely find the same conditions to deal with. An incision should be made that will expose the parts to be operated upon and not injure any part that should be protected. As to the drainage tube, it should be employed where it will save life. Mr. Tait says it decreased his mortality from 10 to 25 per cent. This may not be ideal, but it is common sense and it is profitable both to the surgeon and the patient. In illustration of this topic I report the following cases:

Mrs. S., aged 29; married. Has one child living; two miscarriages. Had been in good health prior to six weeks before I was called. During that time she had been attended by three prominent practitioners. She gave the following history: Was taken with a severe pain in the right inguinal region, the pain disseminating from McBurney's point towards the umbilicus and extending up as far as the gastric region, attended with nausea, constipation and unbearable suffering within that time. She had been informed that she was pregnant by the first doctor in attendance. She called a second, a prominent gynecologist of this city, who, passing the hand over the distended abdomen, told her she had womb trouble, and to come to his office the following Wednesday and he would treat her, charging her $10 for his valuable information, and instructed her to have leeches applied over the abdomen, which was done. The ecchymotic points at the time I operated upon her showed the ravages of these animals upon this poor sufferer, for which she had to pay an additional fee of $10. I examined her on April 1, 1891, at her home. She then had a temperature of 103 2-5 degrees, pulse 119, weak and irregular. Her senses were blunted, she being in a moribund state, caring little as to what was going on. The abdomen was distended from the pubic arch to the margin of the liver, the right side being greater than the left. Upon percussion there was dullness over the right side of the abdomen. Fluctuation was noticed over the greater part of the right side extending posteriorly. She was sent to the Protestant Hospital that night and early the next morning I operated for suppurative appendicitis. An incision four inches long was made along the outer line of the rectus muscle, which allowed the escape of one gallon of pus. It was so eager to escape that as soon as the knife entered the cavity it spurted out a great distance and was exceedingly offensive. Over the region of the cæcum and within this immense sac outside of the peritoneum; the skin and fascia making its outer covering. I removed this necrotic appendix vermiformis adhering to a thin sheet of peritoneum. I submitted the specimen to Dr. D. V. Dean, who pronounced it the appendix and its hardened secretion in its lumen. The cavity was very extensive, the pus burrowing from the pubic arch to the line of the liver and back of the kidney, at which point a counter opening was made for more complete drainage. The parts were washed with 1 to 1000 bichloride solution, after which it was washed with hot Thiersch's solution once or twice a day until the cavity began to fill up and heal. The patient made a very slow recovery, being confined to her bed for two months, when she was able to move about the house for the first time. She recovered with an enormous ventral hernia in the right lumbar region, owing to the destruction of the muscular tissue from the long retention of pus in that region. I proposed an operation for its cure, but I am doubtful if much good can be accomplished by such procedure because of its extent.

Miss R., aged 20, student at the high school; had enjoyed

excellent health prior to her present attack of pain, which began the day before my first visit, July 28th, 1891. The pain began with a distinct chill; had no former attack of a like character. Her temperature was 100 1-5 degrees, pulse 100, full and hard. The pain began immediately over the region of the cæcum extending backwards and upwards, and was attended with vomiting and increased pain. The right limb was drawn up and held in that position to give relief. I announced the diagnosis to be appendicitis and urged immediate operation. The widowed mother demurred and after a time refused me the privilege of an operation. I ordered saline cathartics, chloral with extract of hyoscyamus to relieve pain, with hot poultices over the parts affected. The temperature ranged continually from 101 to 103 degrees, with increased frequency of pulse until the sixth day, with a slight bulging over the region of the cæcum and with conjoined touch I discovered a fluctuating tumor in the region of McBurney's point. I was then permitted to make the operation by making an incision along the rectus muscle developing a sack of pus which contained about eight ounces which was removed with the débris of the appendix vermiformis and the specimen of an enterolith weighing about 10 grains which had dropped down into the blind pouch causing plastic inflammation, ulceration and perforation, and the formation of the cavity outside of the peritoneum. The wound was rendered antiseptic and carefully drained, which allowed the patient to make a speedy and rapid recovery and she now enjoys uninterrupted good health.

Mr. K., aged 20, had been ill for six weeks supposedly with typhoid fever (?). He had been under the care of a prominent homoeopath and finding he did not get any better I was called on August 12th, 1892. I found the patient with a history of pain beginning in the region of the cæcum accompanied with fever alternating with rigors. I could not get a satisfactory history of the case up to that time but on examination I found a tumor in the left inguinal and hypogastric region to the left of the bladder in front of the larger bowel. By conjoined touch, which was made under an anæsthetic, I could feel a round, fluctuating tumor about three inches in diameter. All the organs of the body were normal. The bladder was emptied, the lower bowel was washed out with an enema; with the previous history, the pain beginning over the region of the cæcum, fever accompanied with rigors, I made out a diagnosis of suppurata appendicitis. On the following day I made an incision over the tumor, beginning over the middle of Ponparts ligament extending upwards about four inches, opening the abdominal cavity and exposing a glutinated mass of omentum low down in the cavity which was an indication of the location of the sac of pus. This was broken into by the finger, the cavity thoroughly opened which was walled off by a plastic inflammation. The pus was washed out by a liberal use of sterilized hot water. The sac evidently was formed by the borrowing of pus from the region of the appendix vermiformis and had formed a deposit at this point. After thoroughly cleansing the parts an iodoform gauze packing was introduced into the lower angle of the wound which was retained until the following day when it was removed; the cavity flushed with sterilized water and a drainage tube introduced, which was allowed to remain until the third day when it was removed. The patient made a speedy recovery suffering from a large varicocele, evidently due to pressure upon the spermatic veins arising from injury to those parts during the operation. He has entirely recovered from that affliction and enjoys excellent health with no evidence of a recurrence of the disease.

Mr. Jos. W., of Dallas, Tex., was taken ill for the third time on September 9, 1892. He had been treated at each time for acute appendicitis, the treatment being applications of ice over the region of the inflammation with saline cathartics, etc. At the time I was called he had the well marked symptoms of pain over the region of the cæcum, but more especially did he suffer from pain in the stomach. He had been given a hypodermic injection of morphine which helped to obscure the symptoms, a most pernicious custom. I ordered saline cathartics with chloral to relieve pain and hot applications over the abdomen, and had the patient removed to the Protestant Hospital the following day. His pulse ranged from 88 to 100, temperature from 100 to 102.3-5 degrees. On the 13th I opened the cavity over the cæcum, carefully dissecting the tissues to avoid the peritoneal covering until it was determined there was no sac formed outside of the peritoneal covering. When the abdominal cavity was opened a somewhat unusual condition was shown. The cæcum was movable, and on being lifted up it was discovered that a thin fold of omentum was adherent to its wall posteriorly, forming a sac which contained pus and the remains of the appendix vermiformis, a portion of which remained showing the character of that organ. The adherent omentum was carefully detached and that part which had become necrotic was tied and cut off. The cavity was washed out with warm sterilized water, the opening packed with iodoform gauze, which was removed on the following day. The cavity again being cleansed, a smaller packing of gauze was introduced. From this time the patient made an uneventful recovery, since which he has been in perfect health.

Mr. T., aged 49, healthy, except occasional attacks of indigestion causing pain in the right inguinal region. Had in the past six months two other attacks of pain which had passed off after he had taken a dose of castor oil and laudanum accompanied with rest for a few days. I was called to see him for the first time September 21. His pulse was 100, full and hard, temperature 101 degrees; pain in back and side, chiefly in the region of the cæcum. He had taken paregoric for the past two days and was fully under its influence when I examined him. I continued to visit him, ordering saline cathartics and chloral to relieve pain. On the 23d I for the first time discovered dullness over the region of the cæcum; on the 24th he was placed under the influence of an anæsthetic; an incision was made over the most prominent part of the field of dullness, cutting into a sac of pus which was small, containing not more than one or two ounces with the débris, composed of the broken down appendix vermiformis. The sac was washed out with a hot bichloride solution, the cavity packed with iodoform gauze, which was the beginning of a speedy recovery which took place within the following six weeks.

Mr. R., aged 16, student, had enjoyed excellent health until his attack three days before I was called to see him, August 26, 1892, giving me the following history of pain in the right iliac region with range of fever from 100 to 103.3-5 degrees, pulse 85 to 104. On the fifth day a tumor the size of an orange was discovered by conjoined touch, which prompted an operation the following day. The patient had been treated with cathartics, pain relieved by chloral and hot applications over the inflamed surfaces. On the sixth day an incision was made over the tumor, which was opened and about six ounces of pus evacuated. The cavity was packed with gauze, allowing free drainage. The patient made a speedy recovery, since which time no recurrence of the disease has made its appearance.

Mrs. L., colored, aged 23 years, came to the outdoor department of the Protestant Hospital some time in 1892. She suffered great pain over the region of the cæcum which continued for about a week. I did not see her for about

four or five days after her first visit. I was called to see her in great suffering, and upon examination I found a dullness over the region of the cæcum and by conjoined touch I could feel a fluctuating tumor. I made an incision in the usual line, opening into a cavity of pus which was discharged, the parts washed out as well as the surroundings and circumstances would allow, the cavity packed with gauze which was removed on the second day and again dressed. The patient made a good recovery notwithstanding she was surrounded with filth and poorly fed.

Miss T., aged 22, sister of a West End physician. I was called to see her late in the fall of 1892 and found her suffering from pain in the right inguinal region beginning at McBurney's point and extending over the abdomen. She had fever with a temperature of 101 to 103 degrees, pulse 110 to 120 weak and irregular. She suffered with nausea, vomiting and constipation. I could by percussion notice a dullness over the region of the cæcum. I made a diagnosis of appendicitis and urged an immediate operation. The family would not consent to it. Afterwards I learned from her brother that she had passed quantities of pus with the stool. She continued to have fever and in about a fortnight she was taken with a violent attack of phelegmasia dolens. I was called to see her again when she was removed to the Protestant Hospital for treatment. The circumscribed dullness over the cæcum had disappeared. The pus evidently had burrowed under the peritoneum to the region of the left caphenus vein, which had produced obstruction of that vessel causing the phelegmasia dolens leaving the poor suffering patient in a most deplorable septic condition. The fever did not abate up to the time she left the hospital, which was three months after the first time I saw her. I hope but cannot believe that she will enjoy health even if she does not perish from this unfortunate condition brought about by this disease, and especially since she was denied the only remedy, a surgical operation, which in my opinion offered her the only hope of health or security from death. (I learn that she has since died.)

In conclusion, the symptoms attending this disease are as distinct and definite as any other affecting the abdominal region. Mistakes in diagnosis should be an exception; that after a diagnosis is made it becomes purely a surgical case and as such it should be treated; that such methods of operation should be used for the removal of cause of the disease, namely, the removal of the appendix; that drainage should be employed in cases where pus is likely to jeopardize the life of the patient; that the earlier the operation is made the safer it will be to the life of the patient, as well as protect the health of the same. Above all, the public should be enlightened and a proper estimate placed upon the danger of this disease and that surgical interference is the only rational treatment.

SELECTIONS.

Children's Rights.—In a recent address to the graduates of the Marion-Sims College of Medicine, Prof. I. N. Love, among other bright sayings, said:

Time was when the only right seemingly granted to children was the right of being born, and to this day this right is granted them without their comfort or wishes being consulted. They are fully justified often in asking the question, "What are we here for?" Surely in response to the selfish desires of the physical authors of their being. The changes have been rung for centuries in monotonous regularity upon the great obligation which children are under to their parents for bringing them into a world of suffering, care, worry and death. There are many who still think that the only right of the child is to be born or by those puritanically inclined, it may be granted the additional right of being "born again" or else damned forever. All will grant the truth of Tupper's announcement that "a babe in the house is a well-spring of pleasure;" at least if it is not, it should be. Is there anything more beautiful, more sweet, more lovable, more heavenly, than a baby? Nothing, unless it be two babies. Yes, truly a baby is a thing of beauty, and we have good authority for the statement that it is a joy forever; but are babies developed in the direction of being perpetual joys? Does their loveliness increase? Will they never pass into nothingness or, what is worse than nothingness, cussedness? As the statement has often been made, that the problem as to whether life is worth living depends much upon the liver, so we are safe in saying that the question as to whether a babe is worth the borning and all that the term implies, depends much upon those engaged in, and responsible for, the borning.

I make bold to say that the men who have invested their money and given their gray matter toward the raising of the finer breeds of horses, cattle and others of the lower animals, manifest greater intelligence and appreciation of their awful responsibilities than do the average parents. Unquestionably, one of the greatest obstructions to-day to the proper appreciation of duty on the part of parents to their children, is due to the maniacal struggle for money and place. Fathers work frantically day and night for gold with which to buy position and power. Mothers, too many of them, are filled with the desire for social preferment or the acquirement of that place in society which will enable them to outshine some one else. Both father and mother should be satisfied with a less degree of success in these directions, and determine in the beginning of their career to work toward the furnishing to the State of high-bred, good blooded children. There is one thing in the Catholic church which commands my admiration, and that is their teaching in the direction of duty to the home and the children, particularly upon the part of mothers; in fact, I am strong in the belief that the world owes much to the Catholic church for its noble fight for the rights of motherhood; for the nobility and the dignity of motherhood. It might well be called the "Mother" Church if for no other reason than that of having placed the Virgin Mary upon the level of God himself, thus putting maternity close to Divinity.

It is the right of every child to have something more than the privilege of calling a man father. It is his right to have that father realize that "filial affection, like patriotism, must be engrained as an obligation, a thing to blush at if not possessed." If, however, the father absorbs himself only with the money getting and the fumes and frets of trade, profession or the commercial world during the earlier years of the child's life, need he be surprised later in life to find that he knows not his own nor does his own know him?

The father calls the child into being. Having done so, he assumes a duty which he should not neglect. It is the right of every child to have something more in his father than a mere provider of food and raiment. Does the father want the honor, the respect and the enjoyment of the sweetest part of life, he must needs make himself acquainted with his child from the day of its birth on. It is as much his duty to study the disposition, character and general human nature of his child, as it is the mother's; indeed he has no more right to shirk his part of the sentimental relations between parent and child, than has the mother. Of course the father who neglects the material interests of his children on the theory that what was good enough for him is good enough for them, "should pay conscience money to his own father." All children have the right to claim that their parents give them the benefit of the mistakes made in raising them; in truth, parents might well take pointers from horse, bird and dog fanciers and cultivate themselves in the direction of becoming child fanciers.

I think it was Oliver Wendell Holmes who once said that the time to treat some of the physical, mental, moral and physical, of children, would been to have treated their great-grandparents.

Children have a right to ask, before being born, that their parents be healthy. A common-sense view of this question should be taken. The State should enact laws preventing the marriage of the criminal, or those diseased, mentally and physically, and all who have not reached the age of sixty. The child has a right to demand, if such marriages do take place, that it be protected; that preventive measures be taken to guard it against the transmission of unfavorable germs. With the existing knowledge that we have, the child should demand protection against disease in advance of its birth, and even of its conception.

Knowing that each and every one of us is a part of all that we have met, we should realize that the child has a right to be protected from improper associations, whether these associations be the germs of diphtheria, scarlet fever, typhoid fever, or worse, the germs that are associated with vice and crime. An authority, high in the church, has given expression to the thought, that if children can be kept under the church influence until the age of seven, they are secured in their faith through all coming time. How many parents realize this fact?

Children have a right to demand the completest cultivation of one of the most important organs given to them, namely, their voice. They cannot all be made good singers, but the voice of every individual could can be developed in the direction of being beautiful. I believe that nowhere on earth is the human voice more neglected than in America. The number of shrill, harsh-voiced girls that one comes in contact with daily is appalling. Too often not sufficient attention is given to voice and the habit of loudness and carelessness of speech is developed. The girl has been badly educated, and the boy as well, no matter what may be their accomplishments, unless they have learned that the secret of being understood lies more in enunciation than loudness. There are more nerves being wounded and irreparably injured each day that passes by the beastly harshness and careless roughness of uncultivated voices than are being worn out by overwork or whipped out by alcohol. It will be difficult for one who ever saw the beautiful, angelic Adelaide Neilson to forget her beauty, but no one who was fortunate enough to have heard the gentle, soothing notes of her lute-like voice will ever forget that. I think that the faithful one in dying, as he approaches the gates of heaven, may expect to hear notes reminding him of the tones of that voice. Is there anything that is more lasting and that more frequently comes back from the way-beyond, to the ear of a boy even though he has reached his second childhood, than the gentle echoes of a sweet-voiced mother? I recall a big, strong, rough-and-ready man to my mind, who, when dangerously ill, referred to his mother long since dead, and the strongest point he made in her favor was that she was a gentle woman and so kindly voiced as always to have had an influence over him in life, beyond that of anything on earth; and that the memory of her sweet voice came to him ever and often when tired, weary and worn, and gave him inspiration.

The Peptonizing Values of Papain.—The *Pharmacological Record* for July, 1893, deals with the properties of papaïn as an aid to digestion. This substance is derived from the milky juice of the unripe fruit of the pawpaw tree (*Carica papaya*). The preparation made by Dr. Finkler is the one taken up for consideration in the July *Record*.

Papaïn is a most energetic solvent of albuminoid substances, in many respects resembling pepsin. Its fermentative agency is not dependent upon the presence of microorganisms. These facts entitle the substance to be classified as a proteo-hydrolytic enzume.

Papaïn has its vegetable origin to commend its employment as a medicine. The general tendency of our times being, as the article points out, to discard so far as possible those drugs that have an animal origin, thereby evading some of the dangers of bacterial infection that inhere in devitalized animal tissues.

The action of papaïn is not impaired by the presence of most salts and antiseptic agents. It is also considerably stimulated by either dilute acids or weak alkalies, a fact which appears to adapt it to assist in gastric digestion where the reaction is acid, and also in the intestinal digestion where the juices possess an alkaline reaction.

Helbing and Passmore, the investigators in this instance, took up anew the question of the peptonizing powers of this substance and they report that their experiments show beyond peradventure that papaïn is a true peptonizing agent. It is capable of converting at least one thousand times its weight of fresh meat fiber into soluble peptone and thus bringing that fiber into an assimilable form.

Ophthalmia Leprosa.—*Ophthalmia leprosa* was the subject of a very interesting paper read before the St. Petersburg Medical Society by Dr. Hulanicki. He found the eyes diseased in three-fourths of the cases and always both eyes affected, though in different degrees.

The eyelids are the most frequent seat of the leprous disease, showing nodular infiltrations along the edges; but in exceptional cases only these nodes ulcerate, leading to secondary disturbances by cicatricial contractions (ectropium, entropium, blepharophimosis).

The *conjunctiva* does not seem to be the primary seat of leprous infiltrations; Dr. Hulanicki at least came to the conclusion that the nodules described by so many writers as leprous nodes of the ocular conjunctiva most likely have been episcleral infiltrations, because the conjunctiva was always found freely movable over the nodes.

In the *cornea*, leprosy produces two distinct forms of pathological changes, to wit: either a diffused progressive opacification, or a nodular infiltrate. Both forms are characterized by a very chronic course and the absence of all inflammatory symptoms. The diffuse opacity is much more frequent than the nodular form, and usually begins at the upper corneal margin, where we find a number of minute gray spots and streaks over which the surface of the cornea is perfectly smooth. These spots gradually increase in number and size, coalesce and ultimately cover the whole cornea with a dense grayish-white opacity (like a total leucoma), which destroys the sight entirely and permanently; for there has never been observed an improvement in the condition of the cornea.

The nodular infiltrate of the cornea is very seldom a primary affection; in most cases it is the product of an episcleral nodule encroaching upon the cornea. The episcleral tumor is seen to grow toward the corneal margin, where it forms a thick, half-moon-like infiltrate; its border facing the cornea is well marked and prominent, while toward the sclera it slopes down gradually; the conjunctiva about this infiltrate is always very vascular. This semilunar infiltrate slowly spreads over the cornea, sometimes getting so large as to give the anterior portion of the eye the appearance of a nodular tumor protruding between the eyelids. These tumors finally disappear either by gradual absorption or by ulceration; but in either case the morbid process terminates with atrophy of the eyeball.

The *iris* is frequently involved by acute inflammation and the formation of small yellowish-white nodules resembling tubercles or gummata; these nodules are absorbed leaving no trace behind, or a small cicatricial spot in the iris. With the iritis there is almost always an inflammation of the ciliary body and choroid, producing temporary or permanent opacities in the vitreous.

The microscopic examinations have always found the typical lepra bacillus, especially in the cells of the nodular infiltrations. These cells are lymphoid cells, imbedded in a fine fibrillar network.

The treatment of the ophthalmia leprosa consists in the early destruction of the nodules either by cauterization or by excision and subsequent cauterization. In this way sometimes the further development of nodules in the cornea is prevented and a fair degree of sight preserved. The leprous iritis is treated like the acute iritis of any other origin. The removal of the nodes in the iris by iridectomy has been recommended, but does not seem so far to have given great satisfaction.—*St. Petersburg Med. Wochenschrift*, June 5, 1893.

Rapid Demonstration of Cholera Bacilli in Water and Feces.—Schill (*Centralbl. f. Bakt.*, June 8, 1893), having observed that tubes containing cholera culture remained uncontaminated notwithstanding frequent removal of the cotton wool plug, conjectured that germs gaining access to the nutrient medium were destroyed by the cholera bacilli, or (more probably) their products of metabolism. This supposition was borne out by an experiment, which consisted in adding to old cultures of cholera, previously sterilized by heat, pure and mixed cultures of various pathogenic and saprophytic bacteria, leaving the inoculated tubes a certain time in the incubator, and then preparing from them plate cultures. These were found to remain quite sterile, or at most to show a few colonies after the lapse of some days; control plates showed abundant growth in a day. When, on the other hand, the sterilized cholera culture was inoculated with cholera bacilli, the plates afforded evidence of growth of these organisms, even after twenty-four hours' exposure to the action of the metabolic products. Upon these observations Schill bases a method of demonstrating cholera bacilli in water and feces. Broth culture of cholera, several months old, is sterilized by boiling once; a small quantity of the water or feces is then added to it, and the whole is placed in the incubator. In two to three hours (longer if the cholera culture is not an old one) gelatine and agar plates and gelatine tubes are prepared from the mixture—the last to show the characteristic growth of cholera. If cholera bacilli are present the colonies should be apparent in a day or so. It is advisable to render all the media employed, alkaline by the addition of crystallized soda (1 per cent.), as recommended by Dahmen. By this means a soil very favorable to the growth of cholera bacilli is obtained.

The Use of Buried Wire Sutures in Laparotomies and Hernias.—In a severe case of abscess between the recti muscles with umbilical hernia in a child 18 months old, Schede of Hamburg, united the two muscles with silver wire sutures, obtaining the most gratifying results.

In a similar case, occurring after a laparotomy, he followed the same procedure, which resulted in his adopting this method principally in laparotomies, to avoid subsequent hernias and also for the removal of already existing hernias.

Since 1890, 150 laparotomies have been treated in this manner, resulting in 121 cures. Seven of the cases had small hernias in the cicatrix, but only four of these were directly attributable to the method of operating. The wounds healed mostly by first intention; small fistulous sores occasionally occurred, but disappeared immediately after the removal of the sutures.

While at the beginning Schede used silver wire only for peritoneal and muscular approximation, he has also employed it extensively in abdominal suturing in general, for the reason that the tension of the wire is easily regulated thus preventing suppuration around the stitches.

The sutures were disinfected by boiling first in 1 per cent. solution of sodii bicarb. and immersion in a 3 per cent. carbolic acid solution.

The dressing of laparotomy wounds when completely sutured, consisted for years in a strip of iodoform gauze from two to three fingers (breadths) wide, made to adhere with collodium.

Schede operated on eleven umbilical hernias, three hernias in the linea alba and thirteen ventral hernia. In all of these the hernial sac as well as the skin covering it were entirely extirpated.

Finally forty-eight patients with incarcerated external inguinal hernias were operated upon, six of whom died. Six with irreducible external inguinal hernias recovered completely. Sixty-eight with *reducible* inguinal hernias all recovered; however, several of this number later on had a recurrence of the trouble. Of thirty-four patients with incarcerated femoral hernias, three died. Out of four with *irreducible* femoral hernia, one died. Twenty-four patients with reducible femoral hernia were all cured, only one having a relapse.

The total number of relapses (10 per cent.) is relatively small, though Schede allowed no trusses to be worn.

The pillars of the ring were united after extirpation of the sac, by six to eight buried sutures. The remainder of the wound was closed without drainage by catgut sutuers. —*Centralblatt fuhr Chirurgie*, July, 1893.

British Interest in Chicago Water.—The *North American Practitioner* pointedly suggests that while thankful for the British interest taken in the question of the water supply in the World's Fair city, yet there are good cruising grounds for the *Lancet* and *British Medical Journal* Commissions nearer home.

The *Practitioner* suggests that American sympathy should be extended to England, as the following distressing condition shows:

Ashton-under-Lyne, June 15th.—The Waterworks Committee decided to curtail the supply on and after June 19th. The population to be supplied is 200,000, and there was on June 15th only thirty-five days' supply in store.

Bakewell, June 10th.—The reservoirs are very low, and the supply is cut off at night.

Birmingham, June 9th.—Notice issued by the Mayor that the available sources are so greatly reduced that it may be necessary to limit the supply and to discontinue street watering.

Devonport, June 16th.—The Water Company have notified the military authorities that they cannot continue full supply, and must cut it off from 6 P. M. to 6 A. M.

Launceston, June 14th.—Water supply very short.

Macclesfield, June 17th.—The Water Committee recommend the greatest care in the use of water, the reservoirs being low.

Manchester, June 20th.—Supply shut off from 8 P. M. to 5 A. M., the entire storage ("of what might fairly be called good water") being enough for forty to forty-five days. Street watering was stopped, with the result of much injury from dust, and bad smells from the gulleys, but well water has subsequently been utilized for that purpose.

Penzance, June 14th.—Reservoirs emptying rather rapidly, and supply to be shut off earlier than usual.

Whitchurch, June 8th.—The local board issued a notice prohibiting all washing of footbaths and yards, and watering of gardens, with the town's water, and threatening prosecution for any breach of the notice.

Transmission of Epithelial Tumors to White Mice.—At the French Academy of Sciences M. Verneuil read, in the name of M. Henri Morau, a very interesting observation on the evolution of certain epithelial tumors in white mice. The experiments were made during the five years from 1888 to 1893. In 1888 M. Morau placed in the right axilla of a white mouse a tumor of the size of a hazel nut, which under the microscope showed the characteristics of an epithelioma of the cylindrical type. This neoplasm has now been transmitted to seventeen generations of mice. In those inheriting, the tumor is still reproduced, but less constantly, and less quickly than at the commencement. In new and healthy animals the inoculation reproduces less quickly and less often, as if the inoculable principle were becoming attenuated.

After giving in detail some control experiments, M. Morau gives the following conclusions, which are of great interest, for it is confirmative of the clinical facts already observed in the march and evolution of these neoplasms:

1. Cylindrical epithelioma of white mice is transmissible to animals of the same species, by inoculation and by ingestion.

2. Heredity plays an important rôle in the development and evolution of these tumors.

3. Traumatism hastens and favors their generalization; and also gestation and accouchement.

4. These tumors produce poisons which, absorbed in the organism, retard deterioration and cachexia.

5. These tumors seem to lose their virulence in the measure in which they are evolved in new animals, but always in the same species.

6. So long as these tumors are not ulcerated they are not invaded by microbes.—*Gazette Medicale de Paris*, July 15.

A Novel Competition for Nurses.—In the course of the discussion on Nurses' Homes which took place at the International Congress at Chicago, Dr. Billings, the president, expressed the view that it was about time that women manifested the latent power claimed for them in a practical and definite form. He pointed out, for example, that it had been left to man to design and erect homes for nurses and training school buildings. Architects and male experts had exhausted their ingenuity in designing such buildings, and he thought that Congress was a very appropriate platform which to invite the exhibition of woman's latent power by urging the superintendents to elaborate plans and enumerate each item which a model nurses' home and training school should contain. The following details of the proposed competition will no doubt be of interest:

ATTACHED TO A HOSPITAL OR UNDER SEPARATE MANAGEMENT.

Two prizes, namely, a first prize of $75 (£15), for the best plan sent in for competition, and a second prize of $25 (£5) are offered by the editor of *The Hospital*, London, England, for competition amongst lady superintendents, matrons and nurses in the British Empire, the United States and the countries of Europe.

Competitors must send in the proposals in typewritten form, which must consist of two parts: (1) A statement setting forth categorically all the rooms and accommodation which are necessary in order to make the proposed nurses' home a model of what such an establishment should be where room is provided for from fifty to one hundred nurses; (2) A second statement and plan prepared in similar form which provides accommodation for from one hundred and fifty to two hundred nurses. Each of these specifications (1) and (2) must be accompanied by plans drawn to a uniform scale, and must explain how the proposed home for nurses can be extended, should the growth of the establishment render such a step necessary.

CONDITIONS.—1. The competitors must send their names and addresses by Nov. 1st, 1893, to Dr. J. S. Billings, U. S. Army, Washington, D. C., and all plans and proposals presented for competition must reach Dr. Billings not later than *January* 1st, 1894.

2. Dr. Billings, Dr. Henry M. Hurd, Superintendent of the Johns Hopkins Hospital, Baltimore, Md., and Miss Sophia S. Palmer, Superintendent of the Garfield Hospital, Washington, D. C., are appointed as the judges of the papers and plans submitted in this competition, and their decision will be final. Should the papers and plans submitted demand such a course, the judges reserve the right of withholding any award.

3. All proposals must be typewritten on one side of the paper only, and all plans must be drawn to a uniform scale of one-eighth inch to one foot.

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, AUGUST 5, 1893.

THE NATIONAL ASSOCIATION OF MILITARY SURGEONS OF THE NATIONAL GUARD.

The National Association of Military Surgeons will meet in Chicago next week. Among their number will be found many from the army who have seen service in the last war, and others who have served in the Indian campaigns. Naval medical officers will be there who have had years of arduous service at sea; Marine Hospital officers who have fought epidemics at close quarters; guardsmen who have served on one side or another during the Civil War and young guardsmen who are ready to be mustered into active service whenever they may be needed.

It is a gallant and accomplished body of medical officers, and that they now have an organization, is due to PROFESSOR NICHOLAS SENN, Surgeon General of the Illinois National Guard, then Surgeon General of Wisconsin. Order is coming into the organization, and when their aims are fully accomplished, the NATIONAL GUARD will be officered by a corps of medical men, in no respect inferior to their colleagues in the Public Service. Much legislation is needed, before all the States provide for suitable examinations before appointment, but the sentiment that the Association is creating will soon compel it. The scientific character of the meetings is yearly improving.

There is some talk of asking the AMERICAN MEDICAL ASSOCIATION to establish a new Section of Military Surgery and Hygiene, but we are not aware of any definite steps to that end. As the constitution of the ASSOCIATION will be under discussion at the San Francisco meeting, this would seem a favorable time to act in the matter.

LEGISLATION FOR THE PREVENTION OF BLINDNESS.

To devise means by which the number of the unfortunate who people our blind asylums may be lessened, is a noble aim; the prevention of blindess is a question which interests the humanitarian and the political economist alike, for the ever increasing number of blind people is a living burden upon the State, and as there are always people who see in legislation a panacea for all evils it is not astonishing that the legislative machinery has lately been set into motion against the evil of blindness. Statistics show that one-third of the inmates of the blind asylums have lost their sight by blennorrhœal ophthalmia in infancy while, on the other hand, the oculists maintain that if this disease is seen and properly treated at the outset, the eyes can be saved in almost every instance, the law makers concluded that if all cases of ophthalmia in the new-born could receive early and proper treatment the number of blind children would be materially reduced. This is perfectly sound logic; but how did they propose to put it into practice?

The New York act for the prevention of blindness (which has served as a pattern for similar laws in other States) prescribes that nurses and midwives should report at once to some legally qualified practitioner any suspected case of ophthalmia in a newborn infant. We must confess our utter inability to understand how a law of this kind shall prove of any practical benefit. It would take the case out of the hands of an ignorant midwife or nurse and turn it over to a physician who may be just as incompetent to manage the case intelligently and successfully; for this law does not require specifically that the legally qualified practitioner to whom the case shall be reported, shall possess the necessary knowledge and experience to treat this disease intelligently, and if the law takes it for granted that every physician has this knowledge and skill, it commits a fatal mistake; for if the experience of those best qualified to give an opinion is correctly reported to us, it would seem that most practitioners are not competent to manage a case of ophthalmia neonatorum; therefore we are convinced that the statistics of blindness will not be altered one iota by such laws as have been enacted, unless every physician is required to give particular attention to, and show his ability in the treatment of this very important disease.

But if we wish to prevent blindness by legislation, it would seem far more rational to act upon the principle that an ounce of prevention is worth a pound of cure. If we can prevent the outbreak of ophthalmia neonatorum we have surely a far better guarantee for saving the eyes of the infants than if we allow the disease to develop and then try to cure it. Now well authenticated reports leave no room for doubting the efficacy of the prophylactic treatment suggested by PROF. CRULE, of immediately washing the eyes of the newborn infant and dropping into them a few minims of a 2 per cent. solu-

tion of silver nitrate. He and his followers have succeeded in banishing ophthalmia neonatorum almost entirely from their wards, and if these silver instillations are, as we are assured, perfectly harmless, there is no valid reason why they should not be made obligatory. As the compulsory vaccination has saved hundreds of thousands of men from the ravages of small-pox, so might the compulsory prophylactic treatment (which requires no special skill and can be carried out by any physician or nurse or midwife) of the eyes of the newborn infant save thousands of eyes from the ravages of ophthalmia neonatorum, and effectually close one of the most prolific sources of blindness.

THE ACTION OF PILOCARPINE ON BODILY TEMPERATURE.

Any scientific investigation of the physiological action of a drug is always welcomed by the profession, and this is especially true when opinions of various investigators are at variance. Some investigators claim that pilocarpine lowers the body temperature, while others assert with equal positiveness that it increases it.

With a view to furnishing evidence which might settle this question, or at least to determine how the heat processes are affected to bring about alterations in temperature, PROF. EDWARD T. RECHERT, of the University of Pennsylvania carried on a series of experiments upon five dogs. His conclusions are interesting and valuable and are as follow:

1. Pilocarpine first increases and then decreases bodily temperature.

2. Heat production and heat dissipation are first increased and then diminished. Heat production is the process primarily affected, the alterations in heat dissipation following and being dependent upon the effects upon heat production, excepting after very large doses, when heat dissipation may be depressed even more than heat production during the stage of lessened heat production.

3. The alterations in temperature are dependent essentially upon the actions on heat production, but may be affected by sweating, and after very large doses by alterations in heat dissipation.

The primary increase of temperature is due primarily to an increase of heat production, but after very large doses this increase may be exaggerated and continued by a diminution of heat dissipation which is greater than the depression of heat production.

The decrease of bodily temperature is due to a diminution of heat production, but may, in part, be due to sweating.

4. The actions on the process of heat production are so much more potent in their effects on temperature than those on the sweat glands, that it is doubtful if the latter ever plays an important part in the temperature alterations.

5. Bodily temperature may be increased during the stage of diminished heat production, owing to the greater depression of heat dissipation.

6. The amount of increase and decrease of temperature and the duration of each of these periods are essentially in direct relation to the dose.

MALPRACTICE CASE.

This word has no charm for a physician's ears. Still he is very much interested in knowing what the courts have to say upon the subject. The latest reported decision touching it, and one too of considerable importance, is that of the Supreme Court of Iowa, in PECK v. HUTCHINSON. This action was brought against a physician and surgeon, who, it was asserted, held himself out as especially skilled in the treatment of diseases of the eye, and was therefore employed and undertook to treat a diseased eye, when he negligently resorted to a surgical operation, instead of using proper medical treatment, and, in performing the operation negligently used a large knife, instead of an instrument adapted to that purpose; and also, it was said, negligently and unskillfully undertook a painful operation on the eye without first giving the proper drug to render the patient insensible to pain, so that by the latter wincing, he negligently and unskillfully cut a long gash in and about the "sight" of the eye, which he left without proper treatment.

A correct statement of the law as to what is required of physicians and surgeons, the court said, is that they are required to use ordinary skill and diligence—only the average of that possessed by the profession as a body, and not by the thoroughly educated only, having regard to the improvements and advanced state of the profession at the time of the treatment. And the defense, which was attempted to be made, that no payment was received for the services rendered, and that where the services are rendered as a gratuity, gross negligence or willful negligence or want of skill will only create a liability, the court further said, was clearly wrong; for it could discover no good reason why the degree of care to be used by the physician or surgeon should be less in case his services are gratuitously rendered. Moreover, in the absence of an express contract in such cases, the law implies that the physician or surgeon shall be compensated for his services, and in the absence of any express contract touching compensation, as the law implies a promise to make compensation, the physician or surgeon must exercise skill accordingly in rendering his services, though in fact he may never be compensated. Two other points in the decision are also to be noticed: The reading from an old edition of a medical work to show what is proper treatment, the court held to be a harmless error, when the evidence clearly showed what the modern practice is. And, lastly, evidence tending to show that a disease from which the patient was suffering generally resulted in the loss

of the eye, was held admissible in defense of a charge of malpractice as above. The court therefore reversed the decision of the lower court and remanded the case for a new trial.

MASSACHUSETTS SANITARY EXHIBIT.

The exhibit of the State Board of Health of Massachusetts in the Bureau of Hygiene and Sanitation in the Anthropological Building at the World's Columbian Exposition is one that should be examined by all interested in sanitary work. It shows the various lines of work done by the Board as well as the results of special investigations.

In the principal court may be found:

Diagrams and charts illustrating the general work of the Board upon Life and Health, Diseases and Epidemics, Vital Statistics and Comparative Mortality. This exhibit includes maps and charts showing the distribution of deaths by townships and by different diseases, the influence of density of population on mortality from several diseases, the distribution of births, marriages and deaths by months, and the results of investigation into the causes of several epidemics of typhoid fever in Massachusetts.

The Lawrence Experiment Station is very completely represented by many samples of sands, gravel, sewage, water, filtered sewage and filtered water, together with photographs and a model showing the arrangement of the filters, laboratories, *et cetera*. Several pieces of apparatus used in the chemical and bacterial laboratories are also shown. This station at Lawrence, Mass., was established in the fall of 1887 by the State Board of Health for experimenting, on a large and complete scale, upon the purification of sewage and water by filtration through sand and other substances, and is the first of the kind in America.

The Department of Food and Drug Inspection shows samples representing some 50,000 samples examined since 1882 of injurious or fraudulent adulterations found in Massachusetts, with diagrams showing the decrease of adulterations since the work of inspection was begun. Models are shown of trichinæ, with charts illustrating the decrease of trichinosis in Massachusetts.

Maps and figures are given showing the results of long continued examination by the Board of the public water supplies of the State. Samples are also shown of Massachusetts waters.

A full set of the reports of the Board since its organization is exhibited, together with many blanks and circulars used in the regular work.

In the annex adjoining the main pavilion may be found photographs and plans of public works illustrating some of the practical results of the scientific investigations of the board, including the sewage filter beds at Framingham and Marlborough for purifying the entire sewage of these towns; sewage precipitation works at Worcester, the largest of the kind in this country; the metropolitan sewage system, which is to form a connected system of sewers for Boston and the cities and towns immediately surrounding it; and the filter bed, now nearing completion, for the purification of the water of the Merrimac river to supply the city of Lawrence—the first large filter of the kind in America. This bed covers two and one-half acres and will filter at the rate of five million gallons per day.

A table and maps are given, showing the towns and cities which have been advised by the Board in regard to water supplies and sewerage systems.

Near by the exhibit of the State Board of Health, is a model and map of the water supply system of the city of Boston, showing the different water sheds included. A set of photographs of the different reservoirs is also shown.

Massachusetts has been more liberal in its appropriations to the State Board of Health than any other State in the Union, and as a result the work accomplished in many respects is better than any done anywhere else in the civilized world.

This exhibit is an object lesson well worthy of study by other States, as owing to the increased density of population and increase of manufacturing wastes, our water supplies are annually becoming more polluted, and the necessity for such work, more and more imperative.

A PROPOSED NEW MEDICAL HOME.

The *Brooklyn Medical Journal*, July, states that a very important meeting has recently been held in Brooklyn, the outcome of which may be expected to be the erection of a building wholly devoted to the interests of the medical profession. Dr. C. N. Hoagland, the liberal founder of the beautiful laboratory existing at that place, has agreed to give largely to this project if the physicians of his city can be unified and brought in under the same roof. He stands ready to give not less than $50,000, if the like sum can be raised from other sources by the profession. A sub-committee of the meeting above referred to has in charge the duty of presenting the project before the various medical societies, about a dozen in number, which will need to take up the subject favorably before the philanthropic donor can move further in the matter.

NEW INEBRIATE ASYLUMS.

A company has been formed, of which Dr. C. H. Hughes of St. Louis, is one of the principal promoters, to establish sanatoria in several principal cities of the country, solely for the treatment and cure of inebriety, with a view of having them managed by thoroughly educated neurologists under

one general management. The sanatoria are to be managed according to business methods that will meet the approval of the regular profession.

SOCIETY NEWS.

American Medical Association.—The majority report on the new Constitution was not adopted at Milwaukee, as the matter was postponed until next year, when all amendments and the minority report will be in order for discussion. The question of army and navy representation, we are assured by certain members of the committee, will be adjusted on a basis satisfactory to the three medical services, and no one need fear but that their wishes will be fully met.

Tri-State Medical Society.—The President of the Tri-State Medical Society of Alabama, Georgia and Tennessee has appointed Drs. A. W. Boyd, E. E. Wise and G. Manning Ellis on the Executive Committee to arrange for the next annual meeting, which will be held in Chattanooga, beginning Tuesday, October 17.

The following sub-committees have been appointed:

Exhibits: Frank Trester Smith, B. S. Wert and Wm. Nolan.

Hall and Hotels: G. Manning Ellis, B. F. Travis and E. A. Cobleigh.

Transportation: E. B. Wise, G. A. Baxter and H. Berlin.

At a recent meeting of the Executive Committee it was decided to limit the number of subjects so as to give scope for a fuller discussion. Prominent men will be invited to treat of a given subject, each writing of a single phase and not endeavoring to cover the whole ground. This will not exclude volunteer papers, which will be welcomed as heretofore, but will be grouped with those of kindred subjects so that all of a kind may be discussed together.

Congress of Education.—The opening ceremonies of the General International Congress of Education was held Tuesday afternoon, July 25th. A reception was held in the evening. The receiving party were the general officers of the World's Congress Auxiliary, and the general officers of the Woman's Branch, assisted by the Commissioner of Education of the United States, and the officers of the National Educational Association, and the General Educational Committee.

The Pan-American Medical Congress.—SECTION ON MILITARY MEDICINE AND SURGERY.—*Preliminary Program.*—The executive president requests the honorary presidents, advisory council and secretaries of the Section, to meet him at the Hotel Richmond, Washington, D. C., on Monday evening September 4, at 8 P. M.

On Tuesday, September 5, from 3 to 6 o'clock P. M., an informal meeting of the Section will be held at the Army Medical Museum for the purpose of inspecting the collections contained in this Museum and the Library of the Surgeon General's office.

On Wednesday, September 6, the regular sessions of the Section will commence at 11 A. M. The address of the executive president will first be read. Short addresses by the honorary presidents will then be in order. A paper on "Laparotomy in Gunshot Wounds of the Abdomen" will then be read by Prof. P. S. Conner of Cincinnati. This paper will be discussed by several prominent surgeons.

The afternoon session will be devoted to a demonstration of the Hospital Corps drill by a detachment under the command of Major John Van R. Hoff, Surgeon United States army; also to an exhibition of a field hospital complete, with equipment now in use in the United States army; followed by a discussion upon first aid to wounded, transportation of wounded men from the battlefield, and field hospitals.

On Thursday, September 7, the morning session will be devoted to reading papers in the English language; the afternoon to papers and discussions in Spanish. One of the honorary presidents of the Section familiar with the Spanish language will be invited to preside.

Friday morning September 8, will be devoted to the reading of papers.

The meetings of the Section will be held in the lecture room of the National Museum Building.

Headquarters of the Section at the Hotel Richmond, corner of Seventeenth and H Streets, N. W.

GEO. M. STERNBERG, *Executive President.*

Pan-American Medical Congress.—*Committee of Arrangements,* Washington, D. C.: Samuel S. Adams, M.D., chairman; J. R. Wellington, M.D., secretary; G. L. MaGruder, M.D., treasurer.

Executive Committee:—Dr. Samuel S. Adams, chairman; Surgeon Generals, Geo. M. Sternberg, U.S.A.; J. Rufus Tryon, U. S. N.; Walter Wyman, U. S. M. H. S.; Drs. S. C. Busey, G. Wythe Cook, Carl H. A. Kleinschmidt, H. L. E. Johnson, Llewellyn Eliot, H. H. Barker, C. W. Richardson, W. Sinclair Bowen, George S. Ober, G. L. Magruder, J. R. Wellington, and John R. Walton, D. D. S.

SUB-COMMITTEES.

Reception:—Dr. S. C. Busey, chairman; Surgeon Generals, Geo. M. Sternberg, U. S. A.; J. Rufus Tryon, U. S. N.; Walter Wyman, U. S. M. H. S.; Drs. J. Ford Thompson, Charles Hagner, Louis Mackall, J. Taber Johnson, T. Morris Murray, G. Byrd Harrison, and Jos. H. Bryan.

Entertainments:—Dr. G. Wythe Cook, chairman; Drs. G. N. Acker and Thos. E. McArdle.

Registration:—Dr. Carl H. A. Kleinschmidt, Chairman; Drs. John S. McLain and Johnson Eliot.

Railroads:—Dr. H. L. E. Johnson, chairman: Drs. E. L. Tompkins and J. Foster Scott.

Printing:—Dr. Llewellyn Eliot, chairman; Drs. Thomas N. Vincent and F. B. Bishop.

Halls and Exhibits:—Dr. H. H. Barker, chairman; Dr. J. T. Winter and C. M. Buchanan.

Ways and Means:—Dr. C. W. Richardson, chairman; Drs. John Van Rensselaer, Wm. Dillenback, Henry B. Deale, and Wm. Compton.

Information:—Dr. W. Sinclair Bowen, chairman; Drs. E. Oliver Belt and F. S. Nash.

Hotels:—Dr. Geo. S. Ober, chairman; Drs. Wm. E. Handy and D. O. Leech.

Delegates to the Pan-American Medical Congress.—Gov. Boies of Iowa, July 26, appointed the following delegates to the Pan-American Medical Congress: Donald MacRae, Council Bluffs; J. W. Holliday, Burlington; Jennie McCowan, Davenport; B. H. Riley, Dallas Center; W. B. Kibbey, Marshalltown; W. Smouse, Des Moines; George Allen Staples. Dubuque; A. C. Jones, Breda; G. S. Bagley, Des Moines; L. B. Matoon, Elgin; Harriet Mallon, Waterloo; F. W. Cram, Sheldon; James D. Reynolds, Creston; J. F. Kennedy, Des Moines; R. C. Hoffman, Oskaloosa.

International Congress of Public Health.—The second address of this Congress has been issued.

This Congress will be in session in the Art Institute Building, Chicago, October 9–14, 1893.

Membership in the Congress is open without fee to all persons interested in public health, who comply with the formalities of registration.

The proceedings will be published by the American Public Health Association, and will be distributed to all members of the Congress who, on the payment of five dollars and election, may become members of the American Public Health Association. This payment of five dollars entitles the member to a copy of the proceedings; is the only fee required, and is entirely voluntary.

Registration may be conducted in person or by correspondence, and it will facilitate the work of the Congress for this to be accomplished as early as possible. To that end an

officer will be present in the Art Institute to attend to registration every day during the preceding week, October 2-7, from 9.00 to 5:00 o'clock, and again on Monday, October 9th, during the same hours. Registration may also be accomplished later, according to placards in the hall.

Correspondence on this subject may be addressed to "The Registration Clerk, Public Health Congress, Art Institute, Chicago." Checks should be made payable to the Treasurer American Public Health Association.

Registration consists in recording the name, including designating titles; the official representation, if any; the permanent residence; and the local address (this may be omitted or changed at discretion). The particular section the member wishes to work with should also be noted. No charge is made for registration.

Special business meetings of the American Public Health Association will be held each morning, including Monday, October 9th, and also at 4:00 P. M. Monday, October 9th, for the election of members.

The opening session of the Congress will be held in one of the large halls of the Institute, at 8:00 P. M., Monday, October 9th, and will be devoted to addresses of welcome by the president of the World's Congress Auxiliary, by the mayor of Chicago, and by the president of the American Public Health Association, and to responses by foreign delegates. These will be followed by the inaugural address by the president of the American Public Health Association.

The mornings of Tuesday, Wednesday and Thursday, from 10:00 to 12:00 o'clock, will be devoted to discussions in general of the meetings of the Congresses upon the following topics:

Tuesday—Diseases chiefly manifested in the air passages: tuberculosis, diphtheria, pneumonia, their prevention or control through public health service.

Wednesday—Disease affecting the alimentary canal: the diarrhœa of childhood; cholera; enteric fever.

Thursday—The eruptive fevers: smallpox, measles, scarlet fever, and the diseases of modern life due to nervous conditions.

Friday morning will be given up to a business meeting of the American Public Health Association.

The general meeting of Saturday morning will close the Congress.

The afternoons of Tuesday, Wednesday, Thursday, and if necessary Friday, will be devoted to the work of the Congress by sections as follows:

1. International, National and State Hygiene: Its methods and regulations, including Vital Statistics. ("State" as here used, indicates an autonomous part of a nation, as a kingdom of the German Empire, an integral State of the American Union.)

2. Municipal Health Service. To include the control of the infectious diseases of men and animals, offensive trades, water supply, the disposal of excreta, garbage and the waste of manufactories, schools and public assemblages.

3. The Infectious Diseases of Men and Animals: their causes, prevention and control.

There will also be general meetings of a popular character at 8 P. M. on Tuesday, Wednesday and Thursday, when addresses will be delivered on public health subjects of general interest. The object of these is to disseminate general information on such subjects as: The prevention of infectious diseases; the causes of ill-health due to soil, air and water; the health and sickness of self-supporters (workers).

All papers that are offered must be received by the "Secretaries of the Public Health Congress, Chicago, Ill.," before September 15th, 1893, and titles and abstracts of these by September 1st.

The president of the American Public Health Association, which embraces the Dominion of Canada, the Republic of Mexico and the United States, will be the president of the Congress.

Honorary presidents will be appointed from other countries.

Dr. John H. Rauch, chairman; Dr. F. W. Reilly, vice-chairman; Dr. F. W. Brewer and Dr. C. N. Hewitt, joint secretaries.

General Committee of the World's Congress Auxiliary on a Public Health Congress: Dr. E. Garrott, Dr. J. M. Hall, Dr. J. B. Hamilton, Col. Bernard J. D. Irwin, M. D., U.S.A., Dr. S. J. Jones and Dr. A. R. Reynolds.

Woman's Committee on a Public Health Congress: Dr. Sarah H. Dayton, Chairman; Dr. Sarah Hackett Stevenson; Dr. Eliza Root and Dr. Julia Ross Low.

The American Public Health Association has appointed the following Committee of Coöperation for the World's Public Health Congress of 1893:

Dr. John H. Rauch, chairman, Chicago, Ill.; Dr. Charles N. Hewitt, secretary, Red Wing, Minn.; Dr. Samuel W. Abbott, Wakefield, Mass.; Dr. A. N. Bell, Brooklyn, N. Y.; Dr. Peter H. Bryce, Toronto, Ont.; Dr. H. D. Fraser, Charleston, S. C.; Dr. Lucien F. Salomon, New Orleans, La. and Lt.-Col. Alfred A. Woodhull, M. D., U.S.A., Hot Springs, Ark.

The American Electro-Therapeutic Association has issued the following circular:

To the Fellows of the American Electro-Therapeutic Association:—The next annual meeting of the Association will be held in Chicago, Sept. 12, 13 and 14, 1893.

Committee of Arrangements:—Chairman, Dr. Franklin H. Martin, Venetian Building, Chicago; Secretary, Dr. S. C. Stanton, 3537 Indiana Avenue, Chicago.

1. Will you attend the next meeting? If so, write to the secretary of the Committee of Arrangements in Chicago, to secure rooms.

2. Will you read a paper? If so, please send title to the secretary of the Association.

3. Have you any new members to propose? If you have, application should be sent to the secretary, with two signatures of members recommending the candidate.

4. Send any change of address to the Secretary.

MARGARET A. CLEAVES, M.D., *Secretary.*

68 Madison Ave., N. Y.

The American Medical Editors will have a meeting and banquet in Washington on the evening of Monday, September 4, the day preceding the assembling of the Pan-American Medical Congress.

Dr. I. N. Love, of the *Medical Mirror*, 3642 Lindell Avenue, St. Louis, has been appointed chairman of the Committee of Arrangements for banquet, which fact gives ample assurance of the success of the latter.

It is earnestly hoped that every medical editor of all of the Americas will endeavor to be present on the interesting occasion. Please address the chairman of Committee of Arrangements promptly.—*Alienist and Neurologist*, July, 1893.

National Association of Military Surgeons.—We will publish the president's address and an abstract of the proceedings in our next issue.

DOMESTIC CORRESPONDENCE.

Prostatic Hypertrophy.

To the Editor:—I have read the editorial on "Prostatic Hypertrophy" and desire to indicate my pleasure in reading it. Paper surgery of that sort does much good. It puts us to thinking. How many have gone down under prostatic hypertrophy and its sequelæ who might have been saved had the remedial powers of surgery with the knife been invoked. Time has been wasted in the study of catheter fever and quibbling as to the nature of the growth. Sir Andrew Clark would have conferred a blessing on *male* kind ten years ago if instead of his learned disquisition on "catheter fever and its causes," he had referred the patient to a surgeon.

There is need, however, for more aggressive work on the prostate. It must be attacked earlier. A dissection of the perineal and external aspects of the prostate without opening the urethra does good if applied before the vesical symptoms have fully developed. The vascular supply of the gland is interrupted by this means and it withers in consequence, and the disturbance of micturition disappears. A perineal cystotomy with the cystotomy left out will afford

great relief and cure the patient before his bladder is diseased. The dangers are almost nil because the great source of sepsis, the fetid urine, can not touch the wound if it is well packed with iodoform gauze until it heals from the bottom. Open the perineum by the bilateral section, proceed as though you intended to enucleate the prostate, but don't. Dress as above described, and the results will prove satisfactory in most instances.

HAL. C. WYMAN.

Medical Practice in Colorado.

DENVER, COL., July 24, 1893.

To the Editor:—I should be glad to have you publish the following regarding our present Colorado law:

Hereafter the Colorado State Board of Medical Examiners will recognize only diplomas from three year schools as entitling their holders to license. The courses of lectures must have been of at least twenty weeks each, and given in three separate years, and a preliminary examination must have been required. Instruction must have been given in anatomy, chemistry, physiology, pathology, materia medica and therapeutics, obstetrics and gynecology, surgery, medical jurisprudence, theory, and practice of medicine and hygiene.

In default of such a diploma the candidate for license must pass an examination in anatomy, chemistry, physiology, pathology, surgery, obstetrics and gynecology, and theory and practice of medicine. Yours very truly,

J. N. HALL, M.D., *Secretary.*

An Inquiry.

FULTON, N. Y., July 24, 1893.

To the Editor:—Will some of your contributors give reasons why venesection is not as useful in relieving acute diseases, viz: pneumonia, *now*, as it was fifty years ago? Also the causes why epistaxis and other hemorrhages in the young, are so uncommon now compared with 1840 to 1870? During that period I was frequently applied to, to arrest nose bleed, more often for the young under 20 years of age. For the last twenty years, I do not remember of being called in a single instance excepting in a few cases of severe exanthematic to relieve nose bleeding. Has the diet, the mode of living, the less physical labor endured, or what has made the difference?

C. G. BACON.

There are no Classes in the Association—All are Equal and Pay Annually.

To the Editor:—Please tell me how long must a paying member continue his dues until he is a life member?

L. K. W. S.

Sparks, Neb., July 26, 1893.

BOOK NOTICES.

System of Diseases of the Ear, Nose and Throat. Edited by CHARLES H. BURNETT, A.M., M.D., Emeritus Professor of Otology in the Philadelphia Polyclinic, etc. Vol. I. Illustrated. Philadelphia: J. B. Lippincott Company. 1893. Pp. 800. Price per vol. in cloth, $6.

Dr. Burnett has produced a valuable and practical book. It consists of monographs upon the various subdivisions of these subjects by twenty-three writers. They aim to give practical conclusions arrived at by other investigators and by themselves aside from theories.

There are two volumes. The first is devoted to the ear, nose and naso-pharynx; and the second to diseases of the pharynx and larynx. The purpose has been to make this work a complete, exhaustive and authoritative treatise with special reference to diagnosis and treatment.

Dr. H. Richards describes the instruments and methods of examination of patients with diseases of the ear. Too much space is given to the old, to the exclusion of the new and important instruments and methods. Fig. 14 illustrates "Politzer's method of inflation of tympana." It represents the forcing of a column of air upward in the direction of the nasal duct, instead of horizontally backwards, as it ought to be, in a line with the orifice of the Eustachian tube. It is plain that a jet of air, like a jet of any gas, or water, should be propelled in the direction of the tube through which it is intended to pass, and such an error as is perpetuated here should be eliminated from a work of this character. Fig. 18 illustrates catheterization. The Politzer air bag is fitted directly into the catheter, without any intervening soft rubber tubing, as it is done in Vienna. Many American aural surgeons have used for years an improvement on this method that saves the patient much unnecessary suffering. It consists of interposing a soft rubber tube between the air bag and the catheter tip. By this means the pain-producing, jerking motion imparted to the catheter with each compression of the bag is prevented. These improvements are important and should be recorded, especially those made by our own countrymen, and they are many. The great strides made in improvements in compressed air apparatus and instruments as employed in Berlin, New York and Chicago are not mentioned in this paper.

Dr. G. Bacon's paper on acute inflammation of the middle ear is full of excellent advice and good sense. He is to be commended for condemning the universal practice of taking large doses of quinine for "colds in the head," especially when the ear is involved. He is one of the very few writers who properly pleuralize the Latin name for drumheads (membranæ tympanorum). He sensibly discountenances the use of the Valsalvan and Politzer methods by patients. They usually do themselves more harm than good. His paper is illustrated by seven colored drawings.

Dr. S. Sexton writes on chronic catarrh of the middle ear. He treats the subject with special reference to the removal of two larger ossicles. The operation is described and strongly recommended. Nothing is said of the deplorable results that sometimes follow this operation—suppuration, vertigo, apparently intensified tinnitus, reproduction of the drumhead and total deafness. Both sides of this question have been fairly and impartially presented in the meetings of the otological section of the American Medical Association, and one naturally looks for the same here.

Dr. C. J. Colles has an exceedingly valuable contribution on the middle ear affections due to the various dyscrasias. It evidences painstaking and exhaustive research.

Dr. R. Barclay gives the best description of fungoid growths of the ear that we have ever seen. There are twenty-five pages, well illustrated, on this subject alone.

Dr. C. H. Burnett's paper on chronic suppuration of the middle ear is a thoroughly practical one. He describes minutely the operation for incision of the hammer and anvil, and is in accord with the best authorities in advising this procedure in the very intractable cases. His statement that peroxide (dioxide) of hydrogen is decomposed by warming it before putting it in the ear is a mistake. At the temperature of the blood the efficacy of a good H_2O_2 is retained, and it is conducive to the comfort of the patient. While he does not endorse Stacke's operation for opening the attic and antrum and excision of the ossicles, he gives a brief but clear account of it. This procedure is about to be tried by Toeplitz and others of New York, and it has been done recently in Chicago, with successful results, by the aural surgeons of the Illinois Charitable Eye and Ear Infirmary. It is one of the most difficult and dangerous operations in surgery.

In Part II, Dr. A. W. MacCoy has a beautifully illustrated article on the anatomy and physiology of the nose and pharynx.

Dr. C. Wagner's paper on the treatment of the nose and throat is of great practical value to the general practitioner. Yet it is regrettable that he endorses the use of the abominable nasal douche. In recommending the use of pyoktannin (which kind?) in sprays and powder, he omits the necessary warning regarding its intense staining property—yellow or violet.

Laryngologists will be surprised to find in the first line of Dr. Bosworth's paper on acute rhinitis the word he has so uncompromisingly condemned—catarrhal. He has re-

versed the generally accepted theory that chronic nasal catarrh results from repeated attacks of cold, for he states that "the chronic inflammation develops primarily, and the recurrent attacks of acute rhinitis become the prominent symptom of the chronic affection." This has the merit of originality. Here is comfort for the poor: "An excess of clothing involves a greater risk to health than a deficiency." The doctor wisely prefers woolen underclothing, and recommends that it be worn and laundered wrong side out by those who have irritable skin—a good suggestion.

The Law of Cremation: An Outline of the Law relating to Cremation, Ancient and Modern. By AUBREY RICHARDSON. Cloth, 16mo., pp. 182. London: Reeves and Turner. 1893.

"Some three years ago," says the author, "at the Medical Society of London, a discussion arose on a paper on the subject of cremation read by my father, Dr. Benjamin Ward Richardson, F.R.S., whether a person could determine for himself as to the mode of the disposal of his remains after death, and whether or not such disposal was entirely in the hands of his executors." Becoming interested in the question, the author collected information from various countries, and this book, interesting alike to the legal and the medical profession, is the result. The historical chapter, which opens with an account of the ancient law, is perhaps the most interesting of any. In the section devoted to the United States, due mention is made of Dr. LeMoyne's crematorium at Washington, Pa., and an opinion of Judge Ewell is quoted at length. An interesting account of the attempt to cremate the remains of General Garibaldi is given. We commend the book.

A Text-Book of Medicine, for Students and Practitioners. By DR. ADOLF STRUMPELL, Professor and Director of the Medical Clinic at Erlangen. Second American Edition, translated by HERMAN F. VICKERY, A.B., M.D., and PHILIP COOMBS KNAPP, A.M., M.D., with Editorial Notes by FREDRICH C. SHATTUCK, A. M., M.D. With 119 Illustrations. 8vo., 1,043 pages, cloth, $6. New York: D. Appleton & Co. 1893.

The second American edition of this standard work, thoroughly revised from the sixth German edition, has just been published. This work is so well known to every practitioner of medicine that it needs no extended introduction. The new edition has been thoroughly revised and brought into line with the latest advances in medicine and bacteriology. In many cases the details of microscopical and bacteriological examination for diagnostic purposes have been so clearly given that a general practitioner may be able without reference to an expert, to make sure of the nature of his case and treat it accordingly. This is noticeably done in the chapters on Malaria and Dysentery, two diseases so frequently met with in practice, and in which the diagnosis is so often in doubt.

Dr. Knapp, one of the translators, has edited the section on Nervous Diseases, and has inserted many notes that add to the value of the section. It is a little singular, however, that no mention is made of the possibility of the identity of Morvan's disease with the anæsthetic form of leprosy, which identity is now strongly suspected by some observers. On the whole, the second edition has sustained the high reputation for accuracy and thoroughness established by the first American edition.

A Chapter on Cholera for Lay Readers: History, Symptoms, Prevention and Treatment of the Disease. By WALTER VOUGHT, Ph. B., M.D., Medical Director and Physician-in-Charge of the Fire Island Quarantine Station, Port of New York, etc. Illustrated with colored plates and wood-engravings. In one small 12mo volume, 110 pages. Price 75 cents: Philadelphia: The F. A. Davis Co.

This book is a timely one, and well calculated to instruct the general public on the nature of the disease and its prevention. We heartily commend it.

Letters from a Mother to a Mother on the Care of Children's Teeth. 16mo paper. Philadelphia: Wilmington Dental Mf'g Co. 1893.

This book is the fourth edition of an excellent treatise intended for popular information on a much neglected branch of hygiene.

Sterility in the Woman and its Treatment. By DR. DE SINETY. Translated by E. P. HURD, M.D. Paper, 16mo. Detroit: George S. Davis. 1893.

This is a book by a well known authority and well translated. Some abridgement has been made in the chapters on Abortion and Extra-uterine Pregnancy. The book is worthy of being bound in something better than paper.

MISCELLANY.

The States May Quarantine.—LANSING, MICH., July 31.—The United States Court has denied the application of the Minneapolis, St. Paul and Sault Ste. Marie for an injunction to restrain the State Board of Health from enforcing its regulations relative to the inspection and disinfection of immigrants at the Michigan border, thus effectually disposing of the objections made to such regulations by the railroads on constitutional grounds and establishing the right of the States to enforce regulations in addition to those of the United States Marine Hospital service.—*Chicago Tribune.*

Texas Medical Journal.—Dr. S. E. Hudson, has become associated with Dr. F. E. Daniel, in the proprietorship of this journal. The name has been changed from *Daniels' Texas Medical Journal* to that by which it will hereafter be known of the *Texas Medical Journal.*

Instance of Longevity.—Mrs. Katherine Hernon died at the county almshouse at Lincoln, Ill., July 30, 1893. She was 103 years of age and a native of Ireland. She came to this country during the service of John Adams, second president of the United States, and outlived all her descendants except grandchildren, who neglected to provide for her. She was believed to be the oldest person in Illinois.

North American Practitioner.—Dr. John H. Hollister, for several years editor of the JOURNAL has taken the editorial chair of the *North American Practitioner.* Those who know him will need no assurance that the course of the *Practitioner* will hereafter run smooth.

Diphtheria Outbreak in New Jersey.—A serious outbreak of diphtheria has occurred at Hightstown, New Jersey. The investigations of Dr. A. Clark Hunt, medical inspector of the State Board of Health, who arrived on July 25, showed that eighteen of the twenty cases then existing were in families served by a certain milkman, and it was ascertained that a lad in the employ of the latter was suffering from the disease and had been working in the dairy for several days after it had made its appearance. On July 27 the State Board of Health issued a bulletin stating that Shippen Wallace, State chemist, indorsed the opinion of Dr. Hunt in relation to the origin of the outbreak, and that the sanitary condition of the town was satisfactory.

New York City Mortality.—The highest mortality that has been recorded thus far through the summer in New York occurred in the week ending July 22. The number of deaths was 1,257, an increase of 161 over the preceding week, and 214 above the average of the corresponding weeks of the

past five years. The increase was chiefly due to diarrhœal diseases among children under five years of age; and the death rate for the week presented an annual death rate of 34.61 per thousand of the estimated population. High as this mortality is, it is considerably smaller than that of the intensely hot weather of July, 1892, when during the week ending July 30, it reached the extreme figure of 1,434.

Paper Stockings.—Paper stockings are a new German invention. A Berlin shoe trade journal says that the stockings are made of a specially prepared impregnated paper stock, which, it is claimed, has an extraordinary effect on perspiring feet. The moisture is absorbed by the paper as rapidly as it is formed, and the feet remain dry and warm, while the constant temperature maintained in the shoes is said to be a great preventive of cold.—*Jenness-Miller Monthly.*

To Obscure the Taste.—Gymnemic acid is the active principle of *Gymnema sylvestris*, the formula of which is $C_{32}H_{48}O_{12}$. It is a greenish-white powder, having a sharp, acid taste; very soluble in alcohol, but slightly soluble in water and ether. When the tongue is touched with it, the taste is completely lost for sweet and bitter. The subjects of the experiment are incapable of perceiving the taste of quinine or of sugar, while that of acid, salty, astringent or spicy substances is completely recognized. Availing himself of this fact, Quirine recommends, before administering bitter remedies, that the mouth be rinsed with a 12 per cent. solution of gymnemic acid in alcohol and water.

To Remove Odors.—The odor of iodoform, creosote or guaiacol may be removed from the hands by washing with linseed meal. Tar water containing oil of wintergreen will remove the odor of iodoform from articles to which it attaches. Powdered coffee will disguise the taste of creosote pills, while burning coffee dissipates the odor of guaiacol or iodoform in rooms.—*Pharmaceutical Era.*

Lunatics in Jail.—The *Texas Health Journal* for July says there are more than one thousand lunatics in the Texas jails, on account of alleged lack of room in the asylums for which a parsimonious legislature has made insufficient appropriations. Who is the Texas Holman?

The Useful Alligator.—The *Pharmaceutical Era* in speaking of "alligatorine" says: It is a French proposition that the fat of the alligator be employed as a basis for ointments. The fat is saponified by alcoholic potash, the soap decomposed by hydrochloric acid, and the fatty acid mixed with cottonseed oil. It is claimed that the metallic salts of this acid are readily absorbed by the skin.

To avoid duplication of payments or complication of accounts, members are respectfully informed that *membership dues* should be sent to the Association Treasurer, Dr. R. J. Dunglison, Lock box 1274, Philadelphia.

Subscription fees from gentlemen not members of the Association, should be sent to this office. Address JOURNAL AMERICAN MEDICAL ASSOCIATION, 68 Wabash Ave., Chicago.

Wanted, two copies of the JOURNAL of January 2, 1892, to complete volume for binding.

LETTERS RECEIVED.

(**A**) Atkinson, W. B., Philadelphia, Pa.; (**B**) Brumbaugh, A. B., Huntingdon, Pa.; Bishop, S. S., Chicago; Cleaves, Margaret A., New York; Cooper, E. B., Sunbury, Pa.; Collins, H. L., St. Paul, Minn.; (**D**) Dunglison, R. J., Philadelphia; Davis, W. S., Minneapolis, Minn.; (**E**) Elliott, A. R., New York; Everett, J. T., Wichita, Kan.; Eagleson, J. B., Seattle, Wash.; (**G**) Griffith & Co., New York, N. Y.; Greene, C. S., San Francisco, Cal.; (**H**) Heath, F. C., Indianapolis, Ind.; (**K**) Katharmon Chemical Co., St. Louis, Mo.; King, J. K., Watkins, N. Y.; (**M**) Marcy, H. O., Boston; Maybury, W. J., Saco, Me.; McBride, J. H., Wauwatosa, Wis.; McGowan, Wm. D., California, Pa.; (**N**) Newman, R. Arlington, Detroit; (**O**) O'Gorman, Jas., Baltimore, Md.; (**R**) Rowell, Geo. P. & Co., New York, N. Y.; Rio Chemical Co., St. Louis, Mo.; Reynolds, H. T., Baltimore, Md.; (**S**) Smith, Joseph, Kansas City, Mo.; Sawyer, L. K. W., Sparks, Neb.; Smith, F. F., Chattanooga, Tenn.; Stewart, F. E., Watkins, N. Y.; (**T**) The Sanitarium, Battle Creek, Mich.; (**W**) Wyman, W., Washington, D. C.; Webster, Geo. W., Chicago; Wyman, Hal. C., Detroit, Mich.; Warner, W. R. & Co., Philadelphia, Pa.; Welch, S. A., Providence, R. I.

THE PUBLIC SERVICES.

Naval Post Graduate Medical School.

The new post graduate school of instruction for surgeons who enter the Navy, established by Surgeon General Tryon, opened at the Brooklyn Naval Laboratory in charge of Medical Director Wells, the first chief of staff of the institution, assisted by a full corps of medical officers of the Navy as instructors.

Dr. Tryon's object in starting the school is to afford young assistant surgeons who enter the Navy a chance to thoroughly familiarize themselves with certain branches of medicine and surgery which they were unable to study in civil life, and to instruct them in the duties which they have to perform on sea-going naval ships.

The school, which opened August 1 at the Naval Laboratory, begins with two scholars who have recently entered the Navy. This building has long been of little use, and has recently been fitted out and adapted for its new use. Soon after assistant surgeons are commissioned they will be ordered to the establishment, and will be required to perform their duties faithfully while undergoing instruction. The course of instruction will continue for a period of at least three months, and will embrace the following subjects: Chemistry, hygiene and sanitary science, microscopy and microbiology, military surgery and operative work, clinical medicine and hospital work, construction and ventilation of modern ships, examination of recruits and life-saving methods, navy regulations, etc.

The students will be expected to visit the naval hospitals, study and investigate diseases as associated with naval life, and the diseases to which sailors are chiefly susceptible. The course will also embrace the general principles of hygiene, causes of disease, methods of investigation and the duties of health authorities.

The record of young officers at the school will be kept and filed away at the Navy Department for reference when an applicant comes up before the examining boards for promotion, and will serve as a guide in a measure, to selecting officers for certain duties.

After completing the course surgeons will be ordered to sea-going ships well equipped to perform the duties of their new life.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 29, 1893, to July 28, 1893.

Capt. LEONARD WOOD, Asst. Surgeon, is relieved from duty at Presidio of San Francisco, Cal., and ordered to Ft. McPherson, Ga., for duty.

First Lieut. BENJAMIN L. TEN EYCK, Asst. Surgeon U. S. A., is granted leave of absence for two months, to take effect on or about September 15, 1893, with permission to apply for an extension of one month.

Major LOUIS M. MAUS, Surgeon U. S. A., is granted leave of absence for one month, to take effect when his services can be spared at Ft. Wingate, N. M.

Capt. WILLIAM B. DAVIS, Asst. Surgeon, is relieved from duty at Ft. Sam Houston, Tex., and ordered to Ft. Brown, Tex., for duty, relieving Capt. GEORGE H. TORNEY, Asst. Surgeon. Capt. TORNEY, upon being relieved by Capt. DAVIS, will proceed to and take station at Philadelphia, Pa., as attending surgeon and examiner of recruits at that place.

Capt. LOUIS W. CRAMPTON, Asst. Surgeon, is relieved from duty at Ft. Spokane, Washington, and from temporary duty at Hdqrs. Dept. of the Colorado, and ordered to Baltimore, Md., as attending surgeon and examiner of recruits, relieving Capt. CHARLES B. EWING, Asst. Surgeon.

Navy Changes. Official list of changes in the Medical Corps of the U. S. Navy, for the week ending July 29, 1893.

Surgeon H. J. BABIN, to temporary duty at naval station, Port Royal, S. C.

Asst. Surgeon A. R. ALFRED, from the "Franklin," and to the "Minnesota."

Asst. Surgeon J. M. MOORE, from Norfolk Hospital, and to the "Franklin."

Medical Inspector E. KERSHNER, to duty on board U. S. S. "New York."

P. A. Surgeon J. F. URIC, to duty on board U. S. S. "New York."

Asst. Surgeon H. D. WILSON, from the "Minnesota," and to the "New York."

Medical Inspector B. H. KIDDER, Medical Director H. M. WELLS, Surgeon FRANK ANDERSON, P. A. Surgeon CLEMENT BIDDLE, granted leaves of absence.